



GLOBAL CONTROLS MARKET:  
Poised for Significant Growth

ENTERPRISE DATA MANAGEMENT:  
Access, Parse, & Filter Big Data



[www.reliablecontrols.com](http://www.reliablecontrols.com)

# RUNtime

The Official Quarterly Newsletter of Reliable Controls® Corporation

Q2 - 2016

Secure Access to Any Remote System



## RCRemoteAccess®



Member of  
**BACnet**  
International



**Reliable**  
controls

# SIMPLIFY YOUR INTERNET-CONNECTED SYSTEM

RC-RemoteAccess®: IT-friendly, BACnet® VPN Software

**S**ecure access to any remote system with RC-RemoteAccess, BACnet virtual private network (BVPN) software from Reliable Controls, that allows you to simplify your MACH-System's Internet connection. RC-RemoteAccess can be installed on the same server as RC-WebView®, RC-Archive®, RC-Reporter®, or on an independent server.

Features include:

## Automation

- Dynamically secure connections for multiple authenticated, independent, BACnet/IP Reliable Controls devices into a single, networked system over the Internet
- Automatically configured IP routing tables, which eliminate the need to program separate BACnet Broadcast Management Devices (BBMDs) or register BACnet Foreign Devices

## Simplification

- Support for Domain Name Server (DNS) or static IP for server ID, simplifying client configuration; client configuration supports Dynamic Host Control Protocol (DHCP)
- Ability to host multiple systems by ID, not port number
- A single inbound port to service multiple independent systems, which simplifies router and firewall configuration by minimizing port forwarding rules, while improving security

## BACnet Support

- BACnet communication routing between connected clients using standard BACnet routing rules

## Security

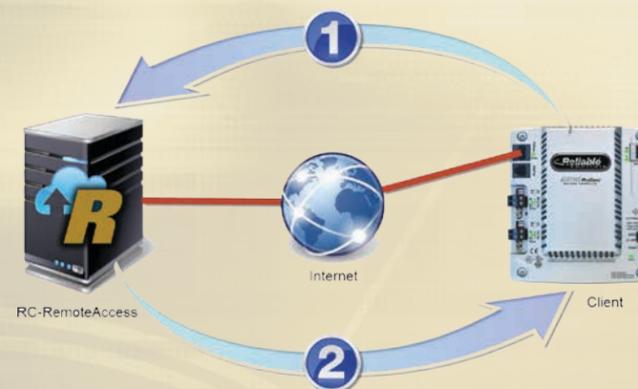
- 256-bit encryption, which requires authentication and system identifier credentials
- TLS protocol (version TLS 1.2 or greater)
- Support for up to 2,048-bit server and 1,024-bit client certificates to secure connections

## Stability

- Superior data integrity and persistent communications with TCP

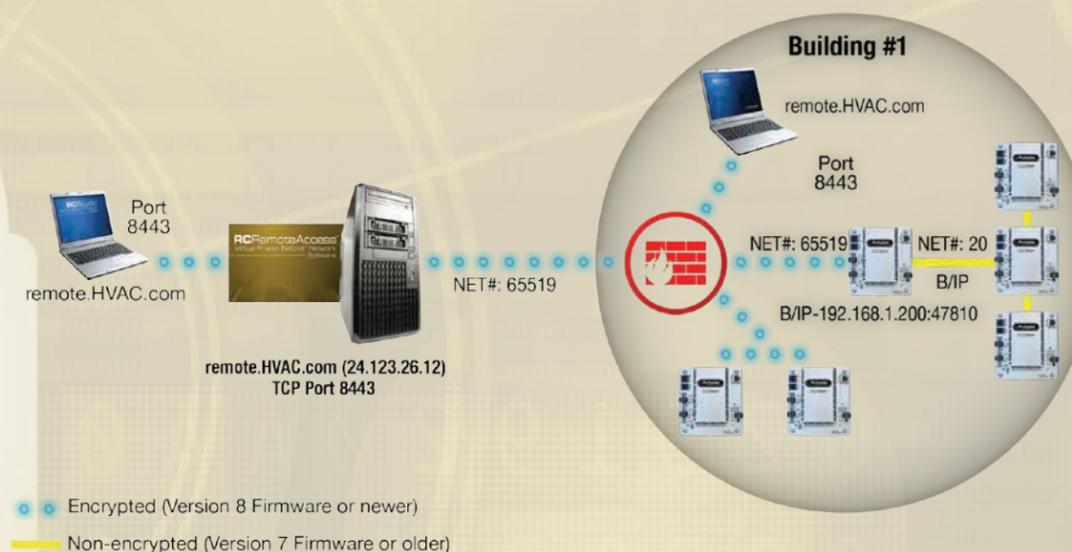
## Licensing

- Flexible licensing limited by the number of unique IP connections
- A maximum of 5,000 IP connections per server
- 12 month updates subscription included with initial license purchase



RC-RemoteAccess not only provides enhanced security; it also saves time through eliminating the need for port forwarding, setting up tables, and other time consuming tasks. The software enables operators to eliminate workarounds that are introduced through BACnet-only connections, and opened BACnet ports, which means that the security is provided within the software itself.

Because RC-RemoteAccess supports client-side DHCP configuration, connecting any IP enabled, version 8 controllers to the Internet is quick and easy.



RC-RemoteAccess is a game changer in both the Reliable Controls MACH-System, as well as the industry overall. Consistent with the streamlined approach to enterprise data solutions pioneered by RC-WebView®, RC-Archive®, and RC-Reporter®, RC-RemoteAccess optimizes enterprise systems by managing multiple independent systems through one simple, web-based management interface. Ideally, every Internet-connected system should use RC-RemoteAccess to simplify networking while enhancing security and saving time.

Better by design™

**RCRemoteAccess**®  
 BACnet® Virtual Private Network  
 Software



# FACILITY ENTERPRISE DATA MANAGEMENT

## Effectively Access, Parse, and Filter Big Data

**F**acility enterprise data management refers to the ability of an organization to precisely define, easily integrate, and effectively retrieve data for internal application and external communication. Modern businesses have access to a magnitude of data never before conceived. A sound enterprise system requires the ability to access, parse, and filter this data and make intelligent decisions to increase efficiency and lower costs.

Building management systems are designed to control and monitor mechanical systems within a facility, each which can be complex and capable of generating tremendous amounts of data. The MACH-System is a simple and powerful tool for harnessing this data, placing facility managers in control.

Each MACH-Pro controller is BACnet® Testing Laboratories (BTL) listed and uses the BACnet protocol; as a result, the system can easily integrate with third-party devices. Freely programmable using the BACnet protocol, the MACH-System enables dynamically adaptive sequences, empowering it to deliver dynamic control and integrate multi-vendor systems, as well as integrate seamlessly and securely into existing facilities and IT networks. The MACH-System is a simple, flexible, and sustainable foundation to accumulate and manage complex systems, networks, and the resulting data.



A solid building automation and control network protocol provides a strong foundation for integration. RC-Toolkit® empowers the MACH-System to integrate building automation system protocols such as BACnet and Modbus. It also facilitates

configuration of modern network protocols such as HTTP, HTTPS, SMTP, SNMP, and SNTP. RC-Toolkit even allows data from Internet services such as current and forecasted weather conditions to be seamlessly integrated into a facility enterprise data management system. The tools that RC-Toolkit provides are fundamental to unlocking the potential of the MACH-System in modern networks and to combining data sources into a common, integrated interface. Making the data available is the first step.



One of the challenges to effective facility enterprise data management is the collection and aggregation data from diverse devices into a common, manageable database. Effective systems need to have the ability to dynamically capture data from the controllers, devices, and meters that are connected to the facility's systems. RC-Archive® is specifically designed to automatically record long-term historical logs from any **Internet-connected, BACnet control system**, anywhere in the world. Operators can easily discover new BACnet devices and systems, and choose to simply archive all historical logs or filter data points important for future analysis.

From the very beginning, the operator is in control of enterprise data. Changes are simple to execute and immediate to apply. RC-Archive is used to continuously download BACnet system logs from multiple devices across multiple internetworks, into a common and secure, industry-standard SQL database. Capturing and unifying the data into a single database is fundamental to managing facility enterprise data.

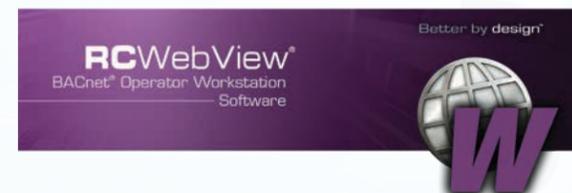
Successful facility enterprise data management is

based on the ability to discover more meaningful and actionable insights from the data that is captured. RC-Reporter® is a fully customizable, server-based application that allows managers and consultants to analyze the trend and runtime data recorded from multiple sources.



With intuitive and powerful queries and filters, operators are empowered to generate custom, professional performance reports identifying actionable insights quickly and easily. As a web-based solution, operators and users can access the reports through a browser.

Conditions in the world today are constantly changing. Modern facility operators need an easy way to manage facility enterprise data from anywhere, in real time. Designed to take full advantage of the latest web technologies and mobile platforms, RC-WebView® provides an enduring BACnet Operator Workstation solution.



Modern facility operators have demanding schedules and terabytes of data to manage. Interfaces to manage facility data must be efficiently navigable and accessible through a variety of means. They should also be customizable to each stakeholder. The myControl® mobile device app is an excellent complement



to RC-WebView and the MACH-ProWeb™ for simple, focused access to a MACH-System. The myControl app offers intuitive and completely customizable interfaces that can place key performance indicators (KPIs) literally in the palm of the hands of stakeholders and facility executives. It is like having a data assistant in your pocket.



Internet connectivity and access to modern facilities and facility enterprise data delivers commensurate convenience and risk. Data breaches are an everyday occurrence in the modern world.

"A recent study by Competitive Edge Research Projects reported that of the 300 surveyed mid-market businesses, 80% agreed that they needed to improve analysis of their expanding data collections. 89% with big data initiatives in progress reported significant improvements in decision making. After implementing data management projects, the most cited benefits included: better communication and knowledge sharing (51%), improved business efficiency (49%), and improved consumer satisfaction (46%)."

Dhiraj, 2014

RC-RemoteAccess® secures all BACnet communication by imposing authentication and system identifier credentials with 256-bit encryption. It can connect multiple, BACnet IP devices and networks dynamically, into a single system over the Internet, also eliminating the need for static controller IP addresses, complex routing management, and risky IT configuration. Data security and system integration

provide unparalleled convenience and peace of mind; RC-RemoteAccess makes facility enterprise data available and ensures that is secure.

Like the businesses they serve, building components and automation systems generate data like never before. Effective enterprise data management has a clear impact on businesses and can significantly contribute to better communication and knowledge sharing, improve business efficiency, and improve consumer satisfaction. The MACH-System is engineered to provide a simple, flexible, and sustainable solution for modern facility and enterprise portfolios, and an excellent solution for facility enterprise data management.



## NEW DEALERS

New Reliable Controls Authorized Dealers

Trade Air Engineering (Pacific) Ltd.  
Nadi, Fiji



REA Controls  
Nashville, TN, USA



US Energy Group  
New Hyde Park, NY, USA



Bay State Automation  
Gordon, MA, USA



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.



## TRADE SHOWS



Visit Reliable Controls at these Upcoming Trade Shows



**NFMT: High Performance Buildings 2016**  
May 3-4, 2016, Booth #316  
Austin, Texas, USA



**ARBS 2016**  
May 17-19, 2016, Booth #748 & 749  
Melbourne, Australia



**MEET 2016**  
May 18-19, 2016, Booth #268  
Moncton, NB, Canada



**AIRAH - Perth 2016**  
June 9, 2016  
Perth, Australia

**AIRAH - Darwin 2016**  
June 15, 2016  
Darwin, Australia

**AIRAH - Brisbane 2016**  
July 7, 2016  
Brisbane, Australia

# GLOBAL CONTROLS MARKET POISED FOR GROWTH

Report Cites 8.67% CAGR from 2016 to 2020

In a recent report by Market Research Reports, Inc., **Global Advanced HVAC Control Market 2016-2020**, which was prepared based on an in-depth market analysis with input from industry experts, it was forecast that the global advanced HVAC control market is poised to grow at a compounded annual growth rate of 8.67% from 2016 to 2020. The report covers market landscape, growth prospects, and includes a discussion of the key vendors operating in the market, including Reliable Controls named as a prominent global player.

According to the report, the high demand for advanced HVAC controls in the United States is primarily driven by heat and air conditioning equipment, while in developing countries such as China, the growing need for air quality monitoring systems to prevent respiratory diseases is most likely to boost this market growth.

The traditional building management system (BMS) is the key focus of advanced HVAC controls.

While the potential initial investment can be a deterrent for some, the benefit of an efficient BMS is clear, with systems able to drastically reduce energy consumption and reduce operational and maintenance costs, enhancing the overall performance of existing equipment.

Because Reliable Controls products use the BACnet® protocol as the primary method of communication, the investment in building controls is protected, as BACnet provides the basis in which to grow through using and connecting multi-vendor BACnet listed products. This allows interoperability between different manufacturers' products and provides a guarantee against obsolescence, allowing a BMS to be easily extended with new features to meet the rapidly changing demands of the industry.

While there is an accelerating demand for HVAC



equipment, one of the most prominent trends is the integration of lighting and HVAC controls.

In either new construction or in the replacement of older, low voltage lighting systems, additional Reliable Controls components complement any existing MACH-System to enhance a facility's lighting capabilities. One connection provides the operator full access to both lighting and HVAC control, using a choice of RC-Studio®, RC-WebView®, MACH-ProWeb™, or the myControl® interfaces.

Commenting on the report, an analyst from the research team said, "energy savings by improving the efficiency of lighting and HVAC technologies, as well as integrating controls reduce energy consumption and costs, improve environmental conditions, and create a better indoor environment for building occupants."

In terms of energy performance, 2015 was an excellent year for the LEED® Platinum certified Reliable Controls HQ Annex. For the first time, less energy was used than was designed for



the building. As a result, the Reliable Controls HQ Annex completed the year with an Energy Use Intensity (EUI) of 57.1 kWh/m², below the design EUI of 58.8 kWh/m².

HVAC components consume almost 40% of the electricity used in commercial buildings, and thus, control systems can significantly reduce energy consumption, increase return on investment, and reduce energy costs. In 2015, the sensors segment of the industry contributed to the majority of the revenue to the market, with temperature sensing and control as the most vital sensor functions. In this regard, the Reliable Controls SPACE-Sensor™ Temperature (SST) series provides a traditional solution with a wide array of options to help achieve optimal comfort.

While different parts of the world have varying reasons for implementing advanced controls, the market is growing as a whole, reducing both costs and energy consumption while providing healthier facilities. For a more in-depth look at how the MACH-System is helping the Reliable Controls HQ Annex perform better than design, view the 2015 LEED Performance report at [www.reliablecontrols.com/corporate/facility/performance.php](http://www.reliablecontrols.com/corporate/facility/performance.php).



## ACHIEVING REVISED ISO CERTIFICATIONS

Quality & Environmental Management System Standards

**A** primary objective for Reliable Controls is to have the most satisfied customers in the industry, and ongoing achievements towards this goal demonstrate the company's commitment to having an effective, internationally recognized quality management system (QMS). This system ensures quality standards are met and that the company's processes and organization are continually improving. Part of these quality processes include audits by the ISO Registrar SAI Global; Reliable Controls successfully maintains formal ISO 9001 and ISO 14001 certifications.

ISO 9001 specifies the requirements for a QMS where the capability to provide a product and/or service that meets customer and regulatory mandates needs to be demonstrated. Recently, this standard was updated, and Reliable Controls

has maintained certification to the revised 2015 standard. The most significant revision provides further opportunity for organizations to take stock of current practices and use standards as the basis for the development of a business management system, to unlock the untapped value within operations.

With this new revision of quality and environmental ISO standards, customers still remain the primary focus. Additionally, main changes include:

- **An emphasis on risk-based thinking**
- **A major focus on achieved value for the organization and its customers**
- **Increased documentation flexibility, achieving improved integrations and implementation for organizations with multiple management systems**

The purpose of the ISO 14001 certification is to enable an organization of any type or size to develop and implement a policy committing it to prevention of any type of pollution, compliance with legal and other requirements, and continual improvement. The realization is a management system that recognizes and manages the primary environmental issues through awareness and assessment of applicable legal requirements, objectives for improvement, assignment of responsibilities, competent personnel, communications, procedures, controls and monitoring, emergency response capability, self-correction and assessment, and internal reviews.

ISO 14001 went under significant revision in 2015, focusing on helping organizations develop sustainable business practices that will reenergize, restructure, and improve environmental management practices while driving business

# ISO 9001 14001

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## QUALITY ENVIRONMENTAL ASSURANCE

performance to a higher level. The revised standard offers the framework to prepare for future environmental challenges and business opportunities.

Thanks to a new common structure, ISO 14001:2015 has a higher level of compatibility with other management system standards, effectively enabling easy integration with the new ISO 9001:2015 certification. The standard incorporates more business management terminology and concepts, which will ensure that systems be integrated into the company's overall business processes rather than living as separate entities.

The overall result is a more effective management system capable of achieving better results in environmental performance.

Reliable Controls is proud to announce the company's ISO team has successfully completed the ISO 9001:2015 and ISO 14001:2015 *Understanding and Implementing* courses and now has several certified ISO internal auditors to tackle the new revisions.

### Benefits of Maintaining ISO Certification:

- **Improve Quality & Customer Satisfaction**  
Quality management practices increases organizational efficiency, productivity, and quality
- **Minimize Risk**  
Ensuring that products and services are less likely to fall short of customer expectations
- **Increase Competitiveness**  
Certified quality and environmental management systems attract customers and lower trade barriers to business
- **Gain Market Recognition**  
The world's most widely known QMS helps establish the company's presence as a manufacturer/supplier when entering new markets

people & technology  
 you can rely on™

# GLENEAGLE OFFICE PARK

MONUMENT, COLORADO, USA

CORPORATE

## INCREASED CONTROL

*Gleneagle Office Park is comprised of three buildings built in 2000, two of which are leased office space, and a larger building occupied by the company that owns the facility. The facility was running inefficiently using out-of-date systems, and the occupants were frustrated with comfort levels.*

## PROJECT DETAILS

The main networks of the system are on an Ethernet IP network and the MACH-ProAir™ controllers are on an EIA-485 MS/TP network. The MACH-ProZone™ controllers are also on the EIA-485 network and additionally control the roof top units (RTUs). SMART-Sensor interfaces are used for room sensors. The mechanical equipment of the facility included many older RTUs, and two of them were replaced with newer units to help with efficiency.

These systems are variable volume and temperature (VVT), and each RTU takes care of the first and second floor of the section for which they are designated. A challenge was that the end of the runs on the first floor were always cold; however, with the new system, the static setpoint can now be slid higher when those areas call for heating or cooling. This has helped deliver more air to the space for a faster recovery. Occupants have been given more control of their supply air setpoint, delivering a hotter air temperature to the outer most points of the system. The comfort level is now acceptable, and there is little to no part of failure since the new system has been installed.

After one of the buildings of the facility was retrofitted, the functionality and comfort improved so much that a second building was retrofitted. Repair savings are in the realm of \$10,000 per year and utility bills have been dramatically reduced as a result of the increased control.

To learn more about projects using Reliable Controls® visit  
[www.reliablecontrols.com/projects/overview](http://www.reliablecontrols.com/projects/overview)



### PROJECT TYPE:

**Retrofit**

### INSTALLATION TYPE:

**VVT**

### TOTAL AREA:

**42,300 m<sup>2</sup> (455,317 ft<sup>2</sup>)**

### EQUIPMENT INSTALLED:

**2 MACH-ProWeb™**

**2 MACH-ProCom™**

**80 MACH-ProAir™**

**30 SSL™**

**40 SST™**

**12 MACH-ProZone™**

### NETWORK:

**EIA-485, Ethernet**

### TOTAL SYSTEM POINTS:

**1992 points**

### RELIABLE CONTROLS® DEALER:

**HVAC Solutions, Inc.**

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