EN

BASautomation®

Building on BACnet®

Supervisors • Routers • Gateways
Controllers • Thermostats • I/O Modules

50 years

CONTEMPORARY CONTROLS®

Building on BACnet®

Since 1975, Contemporary Controls has been focused on innovative solutions for building and industrial automation. BACnet (Building Automation and Control Network), developed by the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE), is the most popular open protocol found in building automation and energy management systems. The intent of this open standard is to allow building owners and systems integrators the opportunity to pick and choose BACnet-compliant equipment from various vendors. Contemporary Controls endorses the "open control" concept and its BASautomation line of BACnet products offers open solutions when implementing networked controls in buildings.

BACnet client devices initiate commands while BACnet server devices respond to commands. BACnet devices communicate to one another over a network. The more popular networks include the Internet Protocol (BACnet/IP) and the Master-Slave Token-Passing network (BACnet MS/TP). Interconnecting BACnet networks requires BACnet routers while connecting non-compliant BACnet devices, such as Modbus®, to a BACnet network requires a gateway. Supervisors typically reside at the IP level functioning as clients while I/O modules and communicating thermostats reside at the MS/TP level functioning as servers. Controllers can be found at either level functioning as servers or in some cases as client/servers.

Whatever the product need, the BASautomation line has a solution.

Supervisors

Supervisors provide both BACnet/IP client functionality and control in one package. Besides BACnet MS/TP and Modbus to BACnet integration, supervisors provide head-end capabilities such as alarming, trending, scheduling and graphics.

Routers

The BASrouters are multi-network routers used to route messages between BACnet/IP, BACnet Ethernet and BACnet MS/TP networks. Three versions are available—DIN rail or panel mounted units for fixed installations and a USB powered portable unit for commissioning and troubleshooting.

Gateways

The BASgateways are used to integrate Modbus or EnOcean devices to BACnet systems. Suitable for retrofits and newly constructed buildings, BASgateways help system integrators achieve BACnet compliance.

Controllers

The BAScontrol and Edge Open Controllers utilize BACnet/IP as an open communications protocol, Sedona function block programming, and the free BAScontrol Toolset for unrestricted use in program development and archiving. Thanks to their rugged design and outdoor temperature operation, the BAScontrol series are ideal for unitary control of air-handlers (AHUs), fan coils (FCUs), and rooftop units (RTUs). The BASpi-IO series of daughterboards for Raspberry Pi allow enthusiasts and professionals to create their own BACnet-networked, Sedona programmable controller. The powerful Edge controllers offer next generation controller features such as Azure IoT Central cloud connectivity, graphical dashboards, weather station, scheduling, email alarms/notifications, Wi-Fi connectivity, etc. Both BAScontrol and Edge controllers are freely-programmable or simply configured and deployed out of the box by use of pre-canned programs for a variety of applications provided as free downloads.

Communicating Thermostats

The BASstat line of BACnet Communicating Thermostats feature BACnet functionality over MS/TP or Wi-Fi. Models exist for multi-staged heating/cooling of rooftop units (RTUs), heat pumps, and 4-pipe fan coils (FCUs). These devices can easily be supervised by BACnet client

Displays

The BASdisplays offer a convenient permanent option for a graphics display at a job site. The Android Display allows configuration and display of graphics from HTML-based controllers over a wired Ethernet port or a wireless Wi-Fi connection. The HDMI Display offers a USB port to enable input from the user for a BASpi-Edge controller. Both models feature 10.1" capacitive touch screens and robust aluminium enclosure, along with different options and accessories for mounting including into the control cabinet.

I/O Modules

For those installations that support a fieldbus solution such as Modbus RTU or BACnet MS/TP, Contemporary Controls provides solutions for expanding the number of I/O points in the field. Cost-effective Cube I/O modules are available with analog and digital inputs and outputs in varying combinations.

BASview3 – Web-based Graphical Interface for Buildings

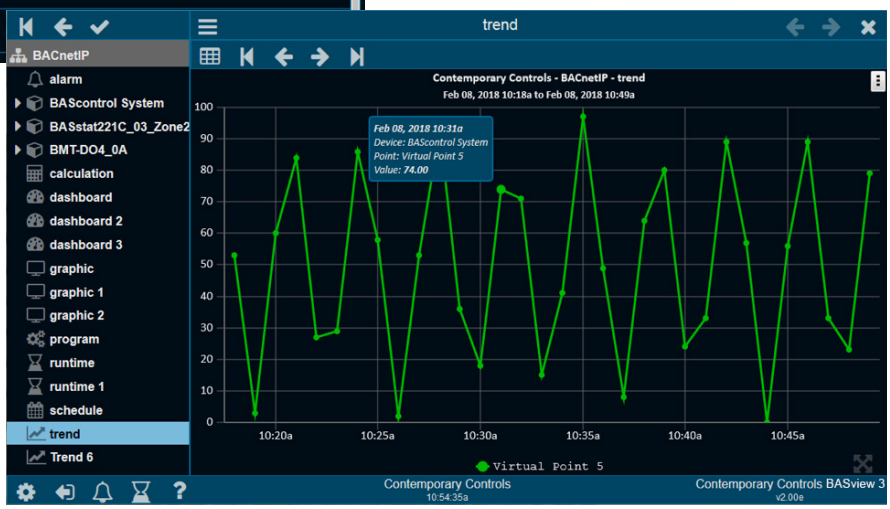
BASview3 is a stand-alone, embedded, web-based graphical interface for building automation and process automation systems. It can be accessed from any web browser providing client functionality to any BACnet/IP or Modbus TCP system. By using BASrouter or BASgateway products, additional protocols such as BACnet MS/TP and Modbus RTU can be integrated. Supervisory features include animated graphic screens, scheduling, historical trending, runtime accumulation and email alarms/notifications. The BASview3 is totally self-contained, requiring no external PC or application for its use. Multiple web browser users can access the device simultaneously. It is ideal for medium-sized buildings or processes that require an easy and intuitive to use graphical interface with no licensing requirements. Animated graphics are available from 3rd parties and can be uploaded to the BASview.

Features

- BACnet/IP and Modbus TCP network supervisor
- Animated graphics & dashboards
- Schedules with sunrise/sunset offsets
- Trend collection, display and export
- Runtime accumulation with email notification
- Alarm condition monitoring with email notification
- Calculated point values (average, min, max, etc.)
- Simple scripting language for light control logic
- Database of up to 100 users and 100 user groups
- Multiple user permission levels
- Activity log for tracking important user actions
- Template system for quickly cloning points and graphics
- Support for up to 1,000 points
- No licensing requirements
- Convenient Installation – 24VAC/VDC powered and DIN rail mountable
- Real time clock for time retention during power loss

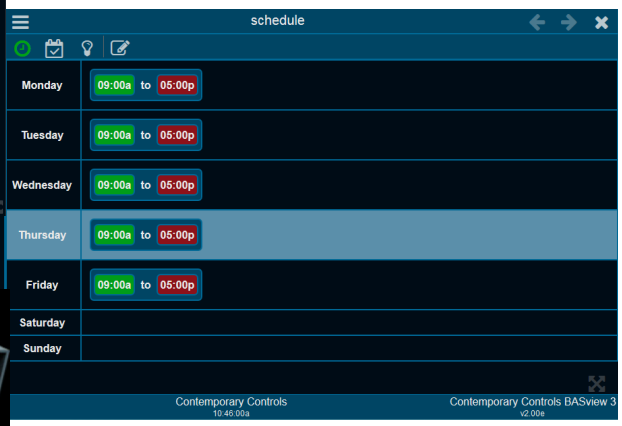
Dashboard Graphics

Trends



Dashboard Graphics

Schedules



Animated Graphics

Works on Tablets and Smart Phones

BASview3 – Web-Based Graphical Interface

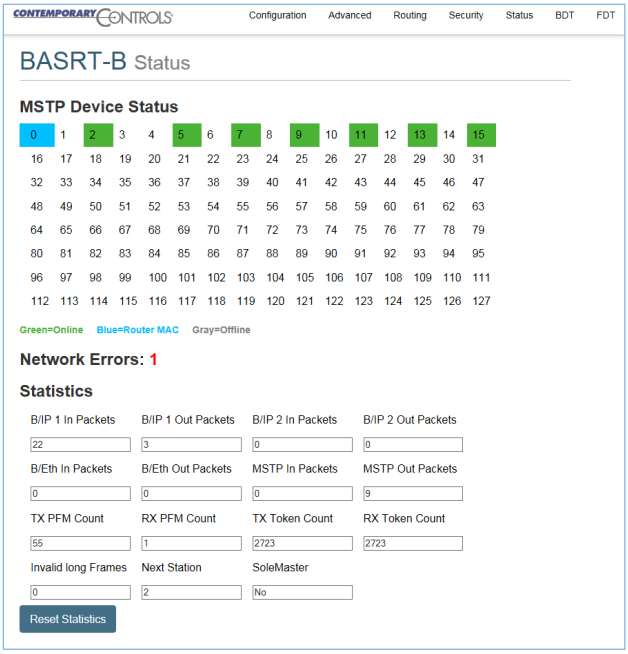
BASview3

The BASview3 is housed in a compact metal enclosure that is DIN rail mounted. Powered by a 24VAC/VDC power source for convenience, and it can retain time in the event of power loss thanks to capacitor-backed RTC. Internally powered by a 1.2GHz quad-core CPU, it has 1GB RAM and 8GB of Flash memory for data storage. Simply connect the device to a BACnet/IP or Modbus TCP 10/100 Mbps Ethernet network to access both BACnet and Modbus compliant equipment.

Model	Description
BASV-3	BACnet/IP Supervisor HTML5 Graphical Interface

BACnet Multi-Network Routing

Our compact BASrouter series of BACnet multi-network routers provides stand-alone routing between BACnet/IP, BACnet Ethernet, and BACnet MS/TP, thereby allowing the system integrator to mix BACnet network technologies within a single BACnet internetwork. New features include built-in BACnet diagnostic capabilities with visual analytics MS/TP status table, routing status table, network errors count, and traffic statistics. This allows the integrator to easily install robust BACnet networks and drastically speed up troubleshooting. Our compact BACnet routers come in two distinct models—the BASrouter is DIN rail mounted and powered from a 24 VAC/VDC source while the Portable BASrouter is USB powered for portable use.



Flexible Communications

- 10/100 Mbps Ethernet with auto-negotiation and Auto-MDIX
- Optically isolated MS/TP port
- MS/TP baud rates range from 9.6-76.8 kbps

IP Network Support

- Web server for commissioning and troubleshooting
- Communication diagnostic web page
- BACnet/IP Broadcast Management Device (BBMD)
- Foreign Device Registration (FDR)

BASrouter – BACnet Multi-Network Router

BASrouter

The BASrouter routes messages between BACnet/IP and BACnet MS/TP and BACnet Ethernet networks. There are two physical communication ports. One is a 10/100 Mbps Ethernet port and the other an isolated MS/TP port. DIN rail mounted and 24 VAC/VDC powered.

Model	Description
BASRT-B	BASrouter BACnet/IP to MS/TP to Ethernet DIN rail Mount

Portable BASrouter – Portable BACnet Multi-Network Router

Portable BASrouter

The Portable BASrouter routes messages between BACnet/IP and BACnet MS/TP networks. There are two physical communication ports. One is a 10/100 Mbps Ethernet port and the other an isolated MS/TP port. For power, the BASRTP-B attaches to the USB port of a laptop computer.

Model	Description
BASRTP-B	BASrouter Portable BACnet/IP to MS/TP to Ethernet

BACnet Multi-Network Routing and Wireshark® Capture

The BASrouterSX is a high-performance BACnet router providing stand-alone routing between BACnet networks such as BACnet/IP, BACnet Ethernet (ISO 8802-3), and BACnet MS/TP. Besides a high-speed processor, they have advanced features such as MS/TP Backbone, Backward Routing, Allowlist option for enhanced security, MS/TP slave proxy support (allowing auto-discovery of MS/TP slaves) and MS/TP frame capture and storage for use with Wireshark®. As a BBMD, up to 50 BDT and 147 FDR entries can be supported. The BASrouterSX has two physical communication ports—a 10/100 Mbps BACnet/IP Ethernet port and an optically-isolated EIA-485 port for MS/TP. Router configuration is accomplished via web pages. The BASrouterSX offers a GSA-compliant model for use in government buildings.

Versatile Routing Between…

- BACnet/IP and BACnet MS/TP
- BACnet Ethernet and BACnet MS/TP
- BACnet/IP and BACnet Ethernet
- BACnet/IP and BACnet Ethernet and BACnet MS/TP
- Two BACnet/IP networks (between two UDP ports)

IP Network Support

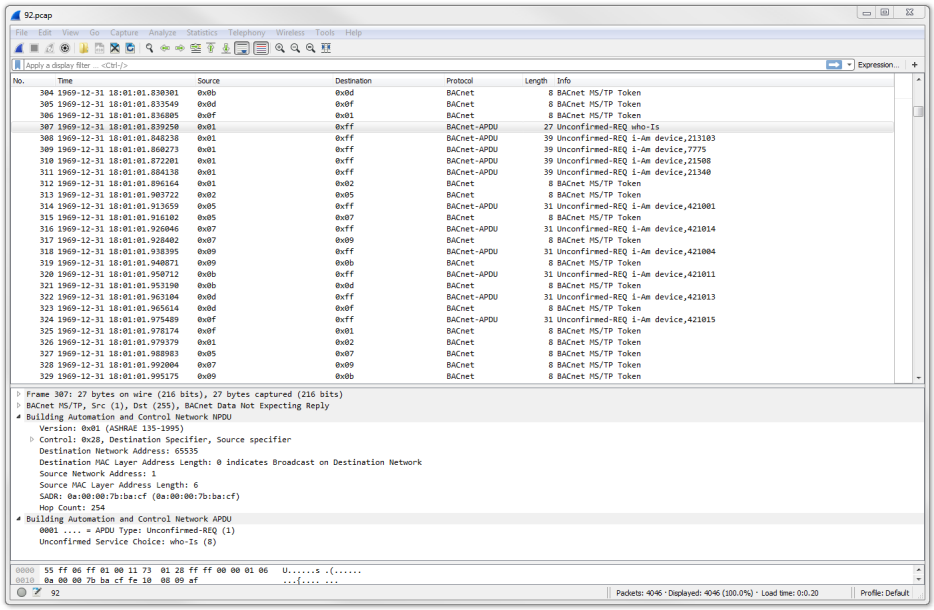
- Web server for commissioning and troubleshooting
- MS/TP capture using Wireshark
- BACnet/IP Broadcast Management Device (BBMD)
- Foreign Device Registration (FDR)

Flexible Communications

- 10/100 Mbps Ethernet with auto-negotiation and Auto-MDIX
- Supports MS/TP slave auto-discovery and proxy
- MS/TP Backbone
- Backward Routing
- Allowlist
- Optically-isolated MS/TP port
- MS/TP baud rates range from 9.6–115.2 kbps

Convenient Installation

- 24 VAC/VDC (± 10%), 47–63 Hz input voltage
- DIN rail mount (BASRTLX-B and BASRTSX-B) or panel mount (BASRTLX-B/P)



High Performance BACnet Router

BASrouterSX

The BASrouterSX high-performance router routes messages between BACnet/IP and BACnet MS/TP and BACnet Ethernet networks. There are two physical communication ports. One is a 10/100 Mbps Ethernet port and the other an isolated MS/TP port. The products feature Wireshark capture. DIN rail mounted and 24 VAC/VDC powered.

Model	Description
BASRTSX-B	BACnet/IP to MS/TP to Ethernet Router with SSL
BASRTSX-B-GSA	BACnet/IP to MS/TP to Ethernet Router for GSA

Modbus to BACnet Gateway

Modbus remains a popular network interface and is commonly found on jobs such as boiler control, variable speed drives, and metering applications, but these devices lack BACnet compliance. To make Modbus devices appear as individual BACnet devices, a BASgatewaySX is used. This device has one 10/100 Mbps Modbus TCP and BACnet/IP Ethernet port and an opto-isolated Modbus EIA-485 serial port for Modbus RTU or Modbus ASCII devices. Up to 200 Modbus serial devices represented by up to 2,000 polled points can share the single Modbus EIA-485 port on the BASgatewaySX. BACnet COV notification is supported on 200 points (100 Analog and 100 Binary points). The virtual routing feature in the BASgatewaySX allows each connected Modbus device to appear as an individual BACnet compliant device. A device profile is needed for each Modbus type device. Contemporary Controls maintains a library of freely-available device profiles available for download. If the device profile is not available, Contemporary Controls will provide it upon request. Custom Modbus device profiles can also be uploaded to the BASgatewaySX using a web page. Modbus data points from Modbus Serial or Modbus TCP/IP devices can be mapped to BACnet objects.

Using HTTPS webpages and a resident database of common Modbus device profiles, Modbus data points from Modbus Serial or Modbus TCP devices can be mapped to BACnet objects.

Over 200 pre-built devices are available from the Contemporary Controls device profiles library.

BASgatewaySX – Modbus to BACnet Gateway

BASgatewaySX

The BASgatewaySX is housed in a metal case that mounts on 35-mm DIN rail and it is powered from a 24 VAC/VDC (± 10%) source. Its half-wave rectified power supply allows sharing of power with other half-wave devices. The optically-isolated serial port allows for connection to either 2-wire or 3-wire EIA-485 networks using a removable 5-pin terminal block. Up to 200 EIA-485 Modbus devices can share the serial bus at data rates between 2.4 and 115.2 kbps. External DIP switches allow flexible bias and termination options. A resident web server allows for commissioning and troubleshooting via a standard web browser.

Model	Description
BASGSX-M1	BASgatewaySX Modbus to BACnet Gateway DIN rail Mount
BASGSX-M1/P	BASgatewaySX Modbus to BACnet Gateway Panel Mount

EnOcean to BACnet Gateway

Contemporary Controls' bidirectional EnOcean to BACnet Gateway allows user to easily integrate EnOcean wireless devices to a BACnet/IP building automation network. Each EnOcean device appears as a virtual BACnet device to aid integration, and EnOcean output devices can be controlled via BACnet.

Versatile Gateway and Control Device

- Bidirectional gateway functionality between EnOcean Wireless and BACnet/IP
- EnOcean device discovery
- Remote commissioning of link tables and configuration settings
- EnOcean device connectivity as virtual, individual BACnet devices for ease of integration
- Built-in EnOcean Device Profiles for seamless integration
- Webpage configuration—no external tools or software required
- Webpage-based remote commissioning of EnOcean devices

The EnOcean to BACnet Gateway allows users to discover and select EnOcean devices on their network. The gateway creates virtual BACnet devices to store the received EnOcean data. These virtual BACnet devices can also be controlled by other BACnet devices, allowing the gateway to control EnOcean output devices via BACnet commands. Selecting one of the built-in EnOcean Equipment Profiles (EEPs) via the webpage provides the gateway enough information to determine which BACnet objects to create for this virtual BACnet device and how to map the received EnOcean data to these objects. This virtual device will have the properties of the EnOcean device contained in its BACnet objects and will update this data whenever the EnOcean device transmits new data. As more EnOcean devices are added to the gateway, more virtual BACnet devices will be created. All of these BACnet devices exist in their own virtual network. This allows BACnet head-ends to easily discover these devices and receive the EnOcean data via BACnet.

For multiple EnOcean devices of the same type, many BACnet head-ends provide the ability to copy/paste these virtual BACnet devices, including their objects, schedules, trends, graphics, and alarms, to simplify integration. For example, you could configure the head-end with the objects from the first virtual BACnet device along with its selected features and copy/paste it for each identical EnOcean device in your facility, thus saving considerable effort.

The bidirectional feature allows the gateway to control EnOcean output devices. The gateway will create virtual BACnet devices that the BACnet head-end can control. The virtual device will have a designated destination address which can be one real EnOcean device or a broadcast address for all EnOcean devices. The gateway will transmit EnOcean messages based on these BACnet object writes from the head-end. These can be used to control many EnOcean devices or a single device. The user can enter many virtual EnOcean output devices.

The gateway can work with EnOcean devices that support EnOcean Remote Commissioning. The gateway or other devices can be added/removed from the EnOcean device's link table. If supported, the gateway can also remotely configure the EnOcean device.

BASgatewayEO – EnOcean to BACnet Gateway

EnOcean to BACnet Gateway

The BASgatewayEO is housed in a compact 4U (70mm wide) DIN rail mounted enclosure and can be powered by 24 VAC/VDC power input. Configuration is done using a web browser via the 10/100Mbps Ethernet port. An SMA connector is provided to connect an external antenna. Two models corresponding to 868 MHz and 902 MHz are available.

Model	Description
BASGE-EN868	EnOcean to BACnet Gateway 868 MHz
BASGE-EN902	EnOcean to BACnet Gateway 902 MHz
BASGE-ANT868	Antenna for the BASGE-EN868
BASGE-ANT902	Antenna for the BASGE-EN902
BASGE-ANT-2M	EnOcean antenna with 2m cable

The Advantages of a BAScontrol Open Controller

Contemporary Controls has always supported open protocols like BACnet, but BACnet does not provide control, only a standardized method for communications. Having BACnet is not sufficient when you are locked out of a job due to a proprietary programming language, licensing restrictions, or a proprietary programming tool only available to "partners." The BAScontrol Series is Contemporary Controls' way of providing a truly open controller by having:

- An open communications network in IP Ethernet or EIA-485
- An open industry supported building automation protocol in BACnet
- An open control language that is license-free in Sedona
- A free programming tool that is available to all without restriction in the Sedona Application Editor

By operating at the BACnet/IP level, the BAScontrol22 can share the same Ethernet network with supervisory controllers and operator workstations. Each unit can be configured for a fixed IP address or can operate as a DHCP client receiving its IP address from a DHCP server. A real-time clock with a super-cap backup allows for creating local schedules. A 10/100 Mbps Ethernet port supports protocols such as BACnet/IP, Sedona SOX, HTTP and FTP. Configuration of universal inputs and virtual points can be accomplished using web pages. Type II and Type III 10 kΩ thermistor curves and a 20 kΩ thermistor curve are resident in the unit. Current inputs can be measured using external resistors. Contact closures require a voltage-free source. Binary inputs and outputs as well as analog outputs require no configuration. The unit is powered from a 24 VAC/VDC source.

The BAScontrol22D operates over its 2 switched Ethernet ports that allow daisy-chaining the controllers providing convenient installation. The BAScontrol22S has one Ethernet port for BACnet/IP and one non-isolated (2-wire) BACnet MS/TP serial port that can operate from 9.6-115.2 kbps. Transmit and receive LEDs flash on MS/TP traffic. A three-position DIP header block can invoke bias and termination for end-of-line (EOL) installations.

Note: The BAScontrol22S does not provide routing functionality between BACnet MS/TP and BACnet/IP.

Versatile Control Device

- BACnet/IP or BACnet MS/TP compliant with a B-ASC device profile
- Resident Sedona Virtual Machine (SVM)
- Programmable via Sedona Application Editor and Niagara4
- Configurable with a common web browser
- A free Niagara4 driver for programming in Workbench or JACE
- Direct connection to Ethernet network
- NTP or manually-settable real-time clock
- COV subscriptions – 14 binary and 2 analog
- Outdoor temperature operation -40°C to +75°C

Flexible Input/Output

- Eight configurable universal inputs: thermistor, resistance, analog voltage, binary input, pulse inputs (4 max)
- Four contact closure inputs
- Four analog voltage outputs
- 6 relay outputs
- 24 virtual points communicate with a BACnet client
- 48 web components communicate with web browser

Client/Server Operation

All BAScontrol series models have B-ASC device profiles meaning they are BACnet server devices that respond to commands initiated by BACnet clients. However, the BAScontrol22CR and BAScontrol22SR also provide BACnet client functionality at a slight cost in wire sheet memory usage. The BASC-22CR and BASC-22SR use a NetV Sedona component that can initiate a read or write operation to a point on another BACnet device within the BACnet inter-network. There is a configuration page to identify the BACnet server devices to be accessed. Once device configuration is completed, a NetV component can be placed on the wire sheet and configured for each object point and type to be accessed on the server devices. With client capability, a BAScontrol can supervise points on other BACnet/IP controllers or BACnet MS/TP controllers using a BACnet router without the need of a BACnet head-end.

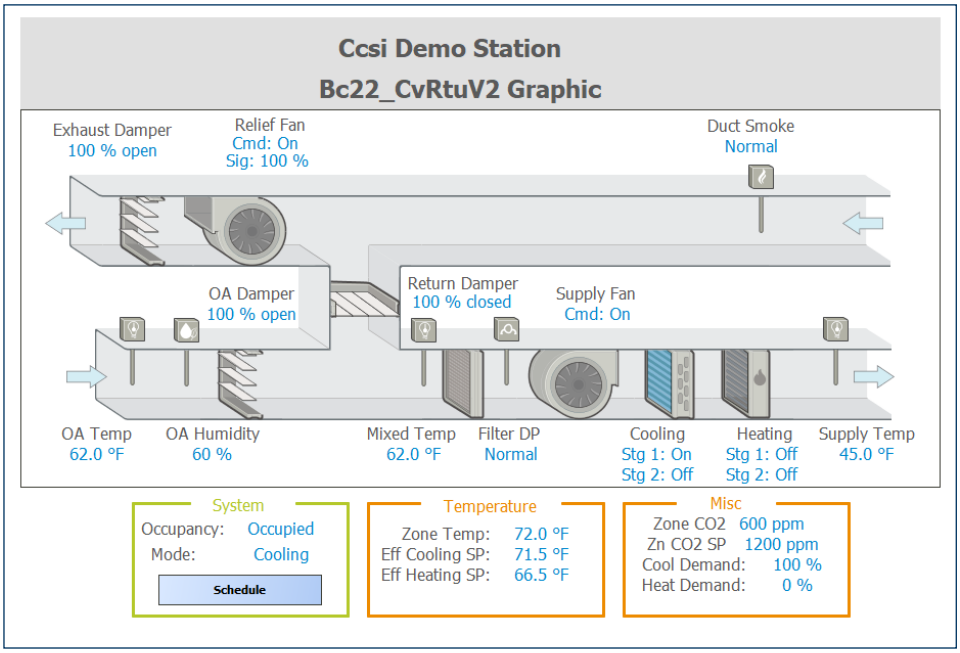
BAScontrol22 – 22-Point BACnet/IP Sedona Unitary Controller

BAScontrol22D

The BAScontrol22 is a 22-point BACnet/IP, Sedona-programmable unitary controller. The unit complies with the B-ASC device profile having a convenient mix of 8 universal inputs, 4 binary inputs, 4 analog outputs and 6 relay outputs. The controller is fully web page configurable using a common web browser, and freely-programmable using Contemporary Controls' free Sedona Application Editor (SAE) and Niagara4 Workbench or JACE. Rugged metal design, low profile, and wide temperature operation make it suitable for indoor or outdoor use. Models with a 2-port Ethernet switch or with a single Ethernet port plus an EIA-485 port provide support for BACnet/IP and BACnet MS/TP.

Model	Description
BASC-22DR	BAScontrol22 BACnet Client/Server 22-Point 6 Relays
BASC-22R	BAScontrol22 BACnet Server 22-Point 6 Relays 2xRJ45 Switch
BASC-22SR	BAScontrol22 Ethernet MS/TP

Pre-Built Constant Volume RTU Sedona Applications make it easy to utilize a Contemporary Controls' BAScontrol22 BACnet and Sedona Unitary controller in constant volume air-handling (AHU) or constant volume rooftop unit (RTU) applications. Although the BAScontrol22 is a freely-programmable controller using Sedona as the control language, it can be made into a configurable controller by installing one of five versions (CvRTUv1-CvRTUv5) of constant volume AHU/RTU applications into the controller from the CvRTU Application Series.



Creating the Next Generation Controller

The mass popularity of powerful micro PCs such as the Raspberry Pi brings low-cost computing power to technical professionals and hobbyists alike. Suitable for most field installations, they also provide an excellent training and experimental platform for individuals interested in controls and automation. Contemporary Controls, committed to open controls, is contributing to this effort by offering controller products under the BASpi name which are powered by the Raspberry Pi. The BASpi-I/O series offers the option of purchasing just I/O daughterboards, also called "hats" which can be mounted on Raspberry Pi and combined with our firmware image to create a powerful DDC controller. BASpi free downloads include the firmware image providing web server for monitoring and configuration, BACnet communication, function block programmable sequence of operation using Sedona, as well as free programming tools—the BAScontrol Toolset. Individuals can develop applications for their unique needs and are encouraged to share them with Contemporary Controls' community.

BASpi-I/O – Board-Level Controllers

The BASpi I/O daughterboards are 12-point expansion boards for the Raspberry Pi with models that differ only in the makeup of their outputs. An I/O board, plus the downloaded firmware image provided by Contemporary Controls turn your Raspberry Pi into a BACnet connected, Sedona programmable controller with 6 universal inputs and 6 relay outputs or 4 relay outputs and 2 analog outputs (model dependent). The universal inputs can be configured for binary input, analog input, thermistor, resistance or pulse. In addition to 12 physical I/O points there are 24 virtual points—all configurable as BACnet points. A total of 48 web components are usable for configuration points accessible through a common web browser. The BASpi communicates over 10/100 Mbps Ethernet or Wi-Fi.

To create a BASpi controller, download the free firmware image from Contemporary Controls' website, burn a micro SD card with the image, mount it into your Raspberry Pi micro SD slot, place one of the BASpi I/O daughterboards on the Raspberry Pi, and boot your new DDC controller. This simple process makes a powerful 12-point BACnet/IP Sedona programmable controller.

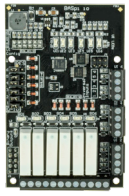
Versatile Control Device

- BACnet/IP server over 10/100 Mbps Ethernet or Wi-Fi
- Resident Sedona Virtual Machine (SVM)
- Web page configurable over Ethernet or Wi-Fi
- A free Niagara4 driver for programming in Workbench or JACE
- Email alarms/notifications
- NTP server or manually settable clock
- Free BAScontrol Toolset
  - Sedona Applications Editor (SAE)
  - BASemulator – BASpi controller emulation on PC
  - BASbackup – BASpi project utility

Flexible Input/Output – 12-points of physical I/O

- Six configurable universal inputs: analog input (0-10V), binary input, resistance, thermistor (10kT2, 10kT3, 20k), pulse input (40Hz max)
- Four or six relay outputs (30 V @ 2A max current)
- Two or zero analog outputs (0-10V)
- 24 Virtual Points (VT) communicate with BACnet clients and supervisory workstations
- 48 Web Components (WC) communicate with web browser for monitoring and configuration

BASpi-I/O Series – Board-Level Controllers



BASpi I/O

The BASpi I/O daughterboards do not include a Raspberry Pi or a micro SD card. Free firmware must be downloaded from the Contemporary Controls' website to create a BASpi controller.

Model	Description
BASPI-IO6U6R	Raspberry Pi Daughterboard 6UI/6 Relay
BASPI-IO6U4R2A	Raspberry Pi Daughterboard 6UI/4 Relay/2 Analog Out

BASpi-Edge – Cloud Connected BACnet Controllers

The BASpi-Edge series are hardened controllers with enhanced features and data processing at the Edge functionality, powered by Raspberry Pi. Housed in a compact 4U (70mm wide) DIN rail mounted enclosure with 24 VAC/VDC power input and a resilient pSLC 8GB micro SD card gives them performance and convenience advantages, making them suitable for a wide array of applications. BACnet client/server communication over Ethernet or Wi-Fi, function block programmable control, and data processing at the Edge using Sedona come standard.

The BASpi-Edge are fully web page configurable with quick and easy cloud connectivity to Azure IoT Central (SaaS) cloud solution. Additional features such as email alarms/notifications, schedules with holidays/exceptions, weather web service, as well as graphical dashboards served over Ethernet, Wi-Fi, or directly out of the resident HDMI port, make the BASpi-Edge ideal for standalone or BACnet supervised automation applications. These Edge controllers can communicate with the local operational network and supervisory stations or other Edge controllers using the industry standard protocol—BACnet.

By leveraging open IoT protocols such as MQTT, proven security mechanisms such as Transport Layer Security (TLS), and robust and easy to use software as a service cloud solutions (SaaS) such as Azure IoT Central, BASpi-Edge controllers can easily and securely connect to the cloud, effectively making any attached equipment a cloud connected asset. Cloud connectivity is optional, but it provides excellent global asset management and supervision capabilities in multi-site building applications, or multi-branch store or retail chains.

Versatile Control Device

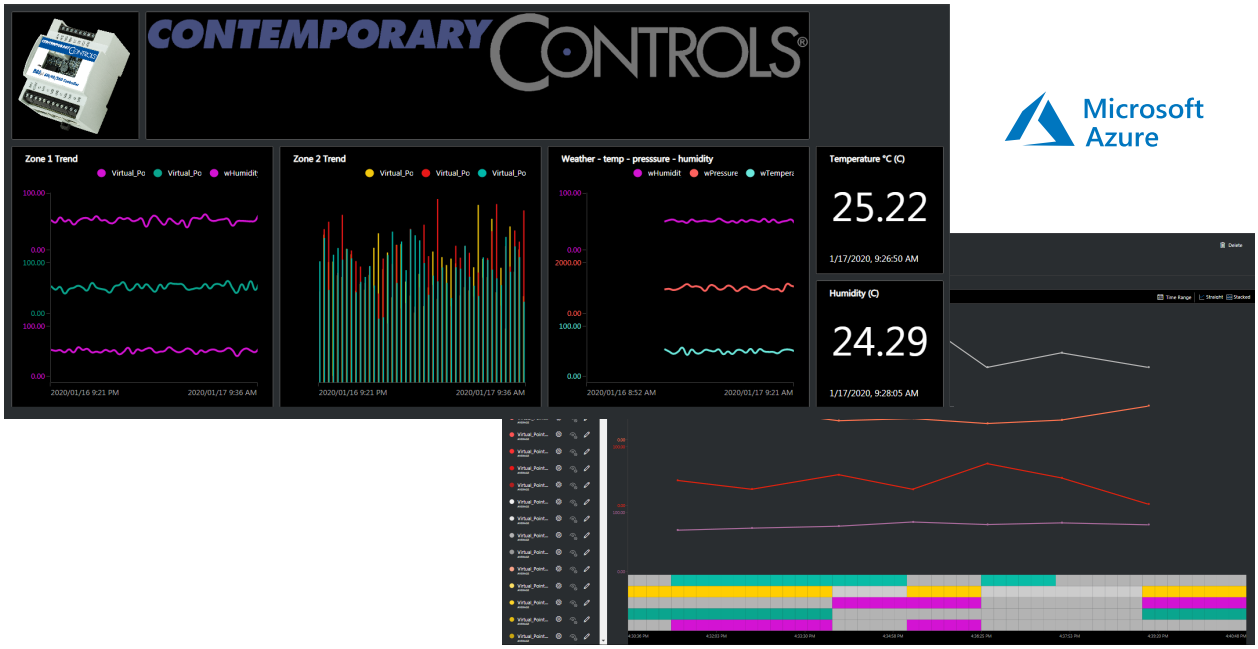
- BACnet/IP client/server over 10/100 Mbps Ethernet or Wi-Fi
- BACnet MS/TP connection using external USB to RS-485 dongle
- Resident Sedona Virtual Machine (SVM)
- Web page configurable over Ethernet or Wi-Fi
- A free Niagara4 driver for programming in Workbench or JACE
- Schedules with holidays/exceptions
- Email alarms/notifications
- Weather web service
- Azure IoT Central (SaaS) cloud connected
- Graphical dashboard served over Ethernet, Wi-Fi, or direct HDMI output
- NTP server or manually settable clock
- Free BAScontrol Toolset
  - Sedona Applications Editor (SAE)
  - BASemulator – BASpi controller emulation on PC
  - BASbackup – BASpi project utility

Flexible Input/Output – 12-points of physical I/O

- Six configurable universal inputs: analog input (0-10V), binary input, resistance, thermistor (10kT2, 10kT3, 20k), pulse input (40Hz max with retention to non-volatile memory)
- Four or six relay outputs (30 V @ 2A max current)
- Two or zero analog outputs (0-10V)
- 48 Virtual Points (VT) communicate with BACnet clients and supervisory workstations
- 48 Web Components (WC) communicate with web browser for monitoring and configuration
- 24 VAC/VDC power and DIN rail mounted

Local graphical dashboards

Azure IoT Central cloud dashboard



BASpi-Edge Series – Cloud Connected BACnet Controllers

BASpi-Edge

The BASpi-Edge series are hardened controllers with enhanced features and data processing at the Edge functionality, powered by Raspberry Pi. Housed in a compact 4U (70mm wide) DIN rail mounted enclosure with 24 VAC/VDC power input and a resilient pSLC 8 GB micro SD card.

Microsoft Azure · ASHRAE BACnet™ · Sedona OPEN CONTROL · niagara4

Model	Description
BASPI-E6U6R	BACnet Edge Controller with 6UI/6 Relay
BASPI-E6U4R2A	BACnet Edge Controller with 6UI/4 Relay/2 Analog Out

BASiot-Edge – Cloud Connected BACnet Controllers

The BASiot-Edge series controllers provide the same enhanced features and functionality as the BASpi-Edge series with wide temp operation from -40 to +75°C and eMMC flash for robust data storage. In addition to cloud connection to Azure IoT Central, the BASiot-Edge can also connect to Amazon Web Services (AWS). The units provide BACnet MS/TP connection via a built-in isolated RS-485 port with bias/termination. BACnet/IP client/server communication is supported over the 10/100Mbps Ethernet port or over Wi-Fi with an external USB to Wi-Fi adapter. Features, such as email alarms/notifications, schedules with holidays/ exceptions, weather web service, as well as graphical dashboards served over Ethernet or Wi-Fi, make the BASiot-Edge ideal for standalone or BACnet supervised automation applications.

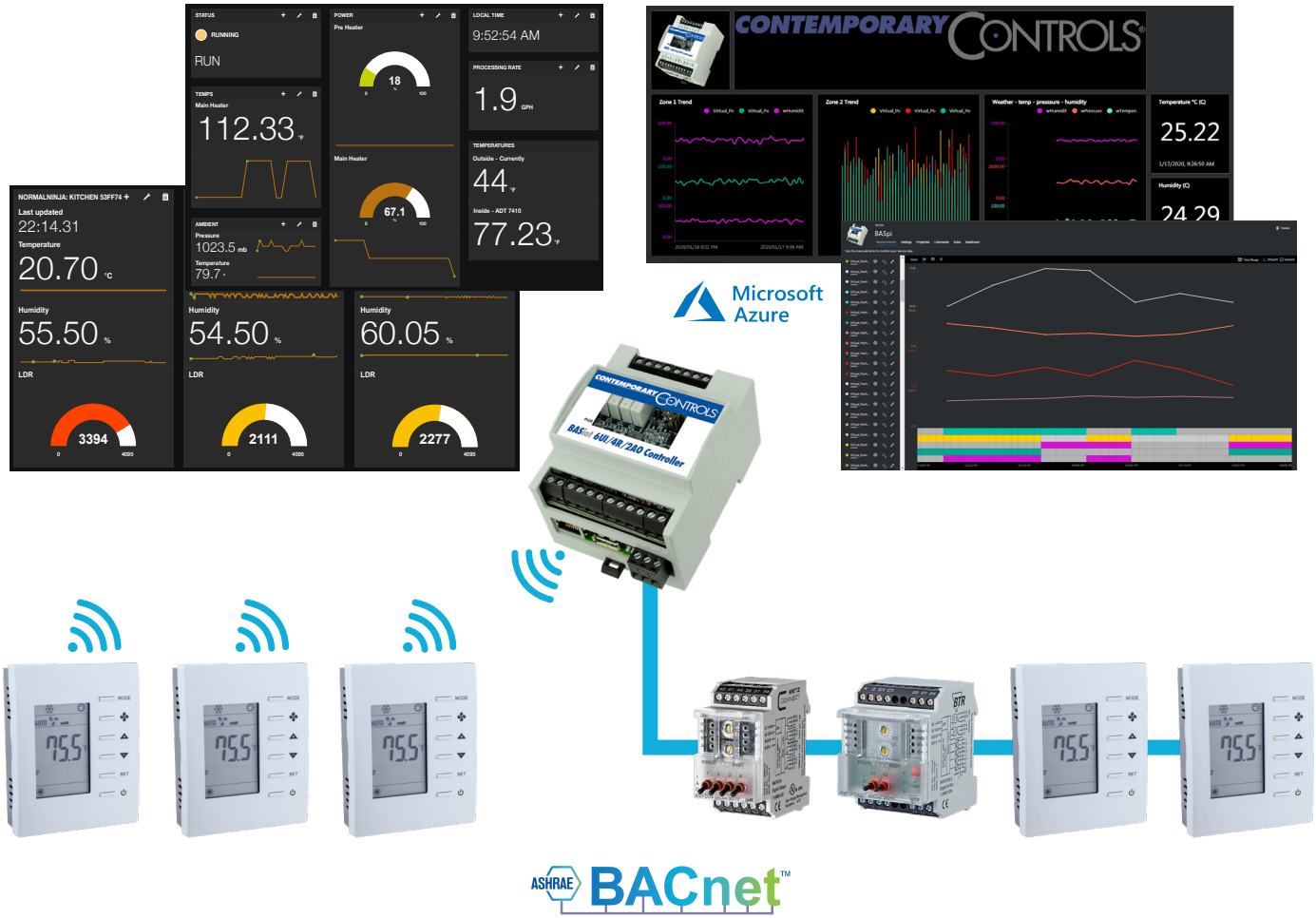
BASiot-Edge Series – Cloud Connected BACnet Controllers

BASiot-Edge

The BASiot-Edge series are hardened controllers with enhanced features and data processing at the Edge functionality. Housed in a compact 4U (70mm wide) DIN rail mounted enclosure with 24 VAC/VDC power input, a resilient eMMC memory, built-in RTC, and wide temp operation from -40 to +75°C .

aws Microsoft Azure ASHRAE BACnet™ Sedona OPEN CONTROL niagara4

Model	Description
BASIOT-E6U6R	BACnet Edge Controller with 6UI/6 Relay -40 to +75°C
BASIOT-E6U4R2A	BACnet Edge Controller with 6UI/4 Relay/2AO -40 to +75°C

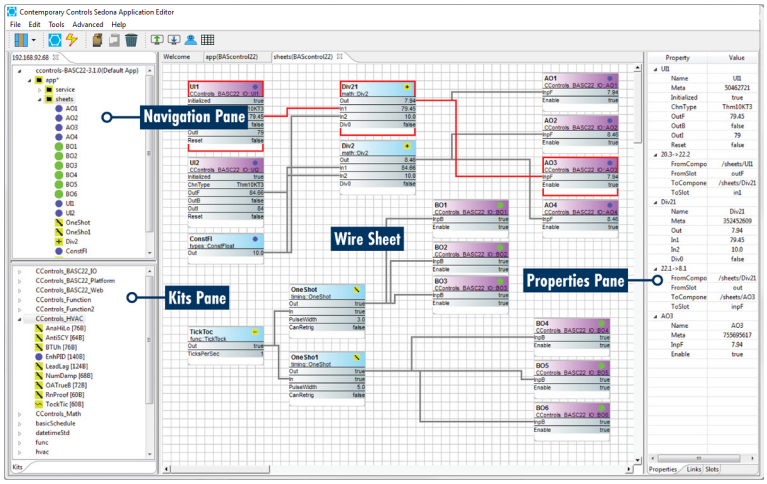


BAScontrol Toolset

Contemporary Controls has developed the BAScontrol Toolset, which simplifies controller programming and project archiving for the BAScontrol Series and the BASpi. The following tools are included in the free BAScontrol Toolset.

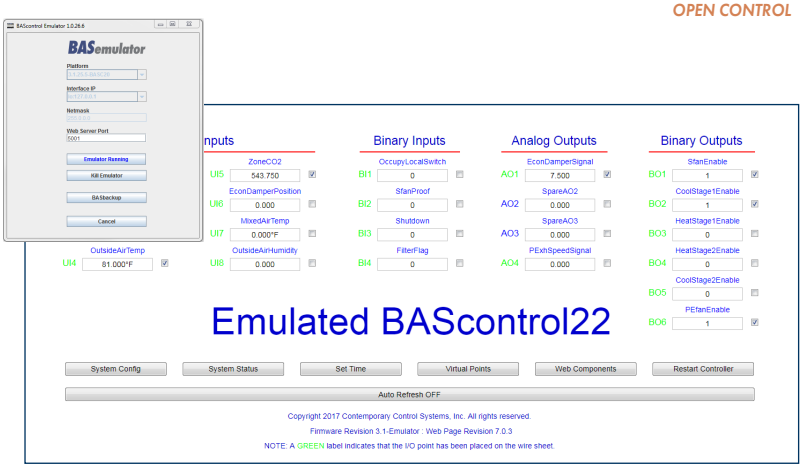
Sedona Application Editor (SAE) is used to connect to Sedona devices (SVM), write/edit function block Sedona wire sheet control applications and to make local wire sheet application (SAX file) backups to a Windows PC or laptop.

- Powerful drag-and-drop function block programming methodology
- Fast and easy to learn
- Pre-assembled components for quick and easy program development
- Continuously growing library of components
- Program changes execute immediately
- Programs run stand-alone and can interact with BACnet clients and supervisory controllers

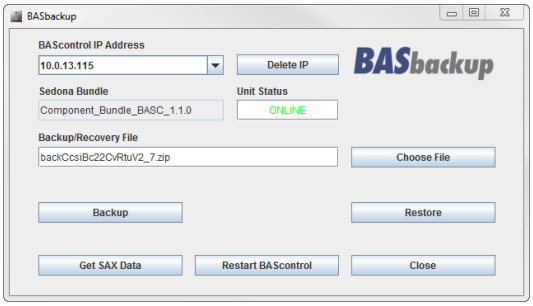


Sedona OPEN CONTROL

BASemulator is the next best thing to a real controller. It is a full controller emulator for the BAScontrol and BASpi series which runs on Windows computers and works in conjunction with Sedona Application Editor and BASbackup Project Utility. This controller emulator allows you to write your Sedona wiresheet application and fully configure all parameters such as Network Settings, I/O Channel Configuration, and BACnet Settings before deploying onto real controllers. The emulator can also be used for training and education purposes because it runs on any standard Windows PC.



BASbackup allows you to quickly and easily backup and restore both a Sedona wiresheet application, as well as complete device configuration to a single project file – making a comprehensive copy of your BAScontrol or BASpi project. This file is transferable between real controllers or emulated controllers (using BASemulator). In addition, BASbackup allows you to clone controllers or reproduce controllers with the ability to alter device configuration settings such as IP address and BACnet device instance during the process which is useful for quick and easy device commissioning in the field.



The BAScontrol Toolset is available as a free download and supports the BAScontrol and BASpi series.

BACnet-Compliant Thermostats

The BASstat series of BACnet Communicating Thermostats feature BACnet server functionality over MS/TP or Wi-Fi for multi-staged heating/cooling of rooftop units (RTUs), compressor heat pumps, and analog 4-pipe fan coils (FCUs). These BACnet-compliant thermostats ensure effortless integration into BACnet/IP (Wi-Fi) or BACnet MS/TP (EIA-485) networks.

All models feature an attractive wall-mounted enclosure with an easy-to-read LCD display that can be set for °C or °F, with graphical icons to indicate setpoint, space temperature, occupancy status, and modes of operation. Three sensing options are available: built in temperature sensor, input for a remote 3 kΩ NTC thermistor, or temperature override network command from Building Automation System.

Units are configurable using its display or via a network connection to a BACnet client. Fully configurable control algorithm parameters allow adaptability to the application which saves energy and ensures seamless comfort for the occupants. Occupancy status can be set for additional energy savings. Operator control is accomplished with six buttons—mode, fan, raise, lower, set and power. Thermostat buttons are optionally lockable to prevent unauthorized control or configuration changes.

Model/Description	Analog and Binary Inputs				Binary Outputs			Analog Outputs	Comm
	Space Temp	Remote Temp	Energy Savings	Humid Sensor	Stage 1 Heating/ Cooling (Single Mode)	Stage 2 Heating/ Cooling (Single Mode)	1-Speed Fan	Analog Heating/ Cooling (Single Mode	
BAST-121C-B2 BACnet MS/TP Thermostat, 2-Heat, 2-Cool, 1-Fan, Wired	X	X	X		X	X	X	X	MS/TP
BAST-121C-BW2 BACnet/IP Wi-Fi Thermostat 2-Heat, 2-Cool, 1-Fan, Wi-Fi	X	X	X		X	X	X	X	Wi-Fi

Model/Description	Analog and Binary Inputs				Binary Outputs					Analog Outputs		Comm
	Space Temp	Remote Temp	Energy Savings	Humid Sensor	Stage 1 Heating	Stage 2 Heating	Stage 1 Cooling	Stage 2 Cooling	1-Speed Fan	Analog Heating	Analog Cooling	
BAST-221C-B2 BACnet MS/TP Thermostat 2-Heat, 2-Cool, 1-Fan, Wired	X	X	X		X	X	X	X	X			MS/TP
BAST-221C-BW2 BACnet/IP Thermostat 2-Heat, 2-Cool, 1-Fan, Wi-Fi	X	X	X		X	X	X	X	X			Wi-Fi
BAST-221CH-B2 BACnet MS/TP Thermostat 2-Heat, 2-Cool, 1-Fan, RH, Wired	X	X	X	X	X	X	X	X	X			MS/TP
BAST-221CH-BW2 BACnet/IP Thermostat 2-Heat, 2-Cool, 1-Fan, RH, Wi-Fi	X	X	X	X	X	X	X	X	X			Wi-Fi
BAST-421C-B2 BACnet MS/TP FCU 4-pipe, single-speed Fan, Wired	X	X	X						X	0-10V	0-10V	MS/TP
BAST-421C-BW2 BACnet/IP FCU 4-pipe, single-speed Fan, Wi-Fi	X	X	X						X	0-10V	0-10V	Wi-Fi
					Reverse Valve	Aux Heat	Comp 1	Comp 2				
BAST-321HP-B2 BACnet MS/TP Heat Pump 2-comp, 1-Aux Heat, 1-Fan, Wired	X	X	X		X	X	X	X	X			MS/TP
BAST-321HP-BW2 BACnet/IP Heat Pump 2-comp, 1-Aux Heat, 1-Fan, Wi-Fi	X	X	X		X	X	X	X	X			Wi-Fi

Wired Model Features:

- BACnet MS/TP
- Baud rates 9.6Kbps - 76.8Kbps

Wireless Model Features:

- BACnet/IP
- Wi-Fi (IEEE 802.11 b/g)
- Web page configuration for Wi-Fi parameters
- Easy initial Wi-Fi configuration by connecting to BASstat as an Access Point using PC, smart phone, or tablet
- WPA2-PSK(AES) secure Wi-Fi authentication
- Access Point and Infrastructure Wi-Fi network modes
- DHCP support

Common Features:

- 24VAC (+/–10%) power input
- LCD Display with graphical icons, °C or °F display
- Ventilation, heating, cooling modes with manual or automatic changeover
- Occupied and unoccupied setpoints with temporary override
- Effective run time accumulation for energy consumption calculations
- Built-in temperature sensor
- Remote temperature sensor input (NTC Thermistor 3kΩ)
- Fully Configurable Algorithm control parameters: Deadband, Stage Differential, Stage Width, Integral Time, Short Cycle, Cooling Short Cycle Delay Time, Maximum Cycles per Hour
- Non-volatile memory (EEPROM) retains user settings during power loss
- Lockable buttons/user interface

BACnet Communicating Thermostat for Single-Mode Heating/Cooling/Ventilation

The BAST-121C thermostats are suited for single or multi-stage heating only or cooling only binary or analog output control applications, such as unitary heating or cooling units. The thermostat can control one or two stages of heating, one or two stages of Direct Expansion (DX) cooling, or a single 0-10V control output for either modulated heating or cooling. Configurable and adaptive control algorithm applied to multi-stage on/off control saves energy and ensures seamless comfort for the occupants.

BASstat – BACnet Communicating Thermostat

BASstat

The BAST-121C thermostats can be configured from the resident Engineering Menu or over the BACnet network. Two control types are available: Cooling only or Heating only. The default control type is Heating Only. These control types are selectable from the Engineering Menu or BACnet object by following a 2-step process to prevent accidental change and is not impacted by a reset.

Model	Description
BAST-121C-B2	BACnet MS/TP Single Mode Thermostat 2BO/1AO
BAST-121C-BW2	BACnet/IP Wi-Fi Single Mode Thermostat 2BO/1AO

BACnet Communicating Thermostat for Multi-Stage Heating/ Cooling/Ventilation

BAST-221 Thermostats are suited for single or multi-stage heating, cooling, and ventilation binary output control applications such as RTUs or AHUs. A configurable control algorithm allows adaptability to the specific application. This adaptive control algorithm applied to multi-stage on/off control saves energy and ensures seamless comfort for the occupants. A built-in relative humidity sensor (in 221CH models) allows the thermostat to display relative humidity on the screen as well as serve it as a BACnet object, dew point calculation is also served as a BACnet object (no control action is taken based on humidity).

BASstat – BACnet Communicating Thermostat

BASstat

The BASstat series of BACnet-compliant communicating thermostats are BTL listed and capable of controlling single- and dual-stage rooftop units. These units can be configured locally or over the network. The wired models are BACnet MS/TP compliant while the wireless model is BACnet/IP compliant over Wi-Fi.

Model	Description
BAST-221C-B2	BACnet MS/TP Thermostat 2-Heat/2-Cool/1-Fan Wired
BAST-221C-BW2	BACnet/IP Thermostat 2-Heat/2-Cool/1-Fan Wi-Fi
BAST-221CH-B2	BACnet MS/TP Thermostat 2-Heat, 2-Cool, 1-Fan, RH, Wired
BAST-221CH-BW2	BACnet/IP Thermostat 2-Heat, 2-Cool, 1-Fan, RH, Wi-Fi

BACnet Communicating Thermostat for Modulating Fan Coil Operation

The BAST-421 Modulating thermostats are suited for modulated heating, cooling, and ventilation with analog output control in 4-pipe applications such as FCUs or air handlers. A configurable control algorithm allows adaptability to the specific application. This adaptive algorithm applied to the modulated valve control saves energy and ensures comfort for the occupants.

NOTE: This unit is designed for 4-pipe HVAC systems and not recommended for 2-pipe HVAC systems.

BASstat – BACnet Modulating Thermostat

BASstat

The BASstat series of modulating thermostats are BACnet compliant with a B-ASC device profile and are suited for modulated heating, cooling, and ventilation with analog output control in 4-pipe applications such as FCUs or air handlers. Wired models are BACnet MS/TP compliant and BTL Listed, while the wireless model is BACnet/IP compliant over Wi-Fi.

Model	Description
BAST-421C-B2	BACnet MS/TP FCU 4-pipe, single-speed Fan, Wired
BAST-421C-BW2	BACnet/IP FCU 4-pipe, single-speed Fan, Wi-Fi

BACnet Communicating Thermostat for Single/Multi-Stage Heat Pump Operation

The BAST321HP heat pump thermostats are suited for heating, cooling, and ventilation with binary output control for single and multi-stage compressor heat pumps with or without 3rd stage auxiliary heat. A configurable control algorithm allows adaptability to the specific application. This adaptive control algorithm applied to multi-stage on/off control saves energy and ensures comfort for the occupants. Reversing valve (O/B) logic is configurable. Occupancy status can be set from thermostat buttons, a wired ESI input, or over the BACnet network.

BASstat – BACnet Heat Pump Thermostat

BASstat

BASstat Series of heat pump thermostats are BACnet compliant with a B-ASC device profile and BTL listed. They are suited for heating, cooling, and ventilation with binary output control for single and multi-stage compressor heat pumps with or without 3rd stage auxiliary heat. Wired models are BACnet MS/TP compliant and BTL Listed, while the wireless model is BACnet/IP compliant over Wi-Fi.

Model	Description
BAST-321HP-B2	BACnet MS/TP Heat Pump 2-comp, 1-Aux Heat, 1-Fan, Wired
BAST-321HP-BW2	BACnet/IP Heat Pump 2-comp, 1-Aux Heat, 1-Fan, Wi-Fi

BASdisplay Android PC with PoE

BASDISP-AND is 10.1" Industrial Touch Display with Android operating system. It is designed to optimize graphics display by webpage from BASpi-Edge, BASview3 or any other HTML-based controller (for example Innotech Omni, Trend IQX, Cylon, Distech, Tridium, CentraLine, iSMA, DEOS, EasyIO). The 10-point capacitive touchscreen with a 16:10 aspect ratio and 1280x800 resolution displays the graphics accurately and precisely.

It offers flexibility in connectivity via a RJ-45 port for Ethernet cable and built-in Wi-Fi module for wireless connection. The display has two power options. The included power adapter offers a wide range of input operating voltage of 110V-240V. The monitor is available in different models to work with UK or EU power plugs. The on board PoE+ (Power over Ethernet) module provides another convenient option to power the display over its Ethernet port.

It offers an option to install an application Kiosk Mode ("Kiosk Browser Lockdown" available in Google "Play Store") which is a perfect solution to fine tune what your display's end-users will be able to do. The whole setup can be done with just a couple of taps. The browser lockdown is a perfect solution to enhance the HMI security without worrying about users amending settings of your devices. Various installation options are available. VESA compatibility and the included wall brackets offer wall mounting of the display on any surface. The included snap-joint brackets allow embedded mounting into the control cabinet.

A robust aluminium enclosure ensures comfort of use and long service life.

BASdisplay Android PC with PoE

BASdisplay

The Android Industrial PC comes preinstalled with Chrome to make it easier to setup any HTML-based controller via a webpage. It has multi-language support for English, French, Spanish, Portuguese, Arabic etc. The built-in Wi-Fi module supports 2.4G bands (802.11 a/b/g/n). The display has 800:1 contrast ratio, 300 nits luminance and a 80/80/80/80 viewing angle. It has an operating temp range of -10°C to +60°C.

Model	Description
BASDISP-AND-UK	10.1 inch Industrial PC Android, 4GB Memory, with PoE+, UK Plug
BASDISP-AND-EU	10.1 inch Industrial PC Android, 4GB Memory, with PoE+, EU Plug

BASdisplay Monitor with HDMI

BASDISP-HDMI is 10.1" Industrial Touch Display designed to optimize the use of the BASpi-Edge controller by leveraging its HDMI output. The 10-point capacitive touchscreen with a 16:9 aspect ratio and 1366x768 resolution displays the graphics accurately and precisely.

It has one HDMI port for display and one USB port to enable touch input. This makes the BASDISP-HDMI Monitor a perfect, cost-effective extension of the BASpi-Edge controller. The HDMI display offers a quick installation without the need to configure an IP address or use a setup wizard. Simply plug in the HDMI cable, and the BASpi-Edge will automatically render the graphics into the BASDISP-HDMI. The USB cable connected to the BASpi-Edge will provide all touch functions. The included power adapter offers a wide range of input operating voltage of 110V-240V. The monitor is available in different models to work with UK or EU power plugs.

Various installation options are available. VESA compatibility and the included wall brackets offer wall mounting of the display on any surface. The included snap-joint brackets allow embedded mounting into the control cabinet.

A robust aluminium enclosure ensures comfort of use and long service life.

BASdisplay Monitor with HDMI

BASdisplay

The display has 800:1 contrast ratio, 300 nits luminance, 5ms response time and a 80/80/80/80 viewing angle. It has an operating temp range of -20°C to +70°C.

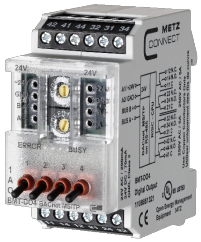
Model	Description
BASDISP-HDMI-UK	10.1 inch Industrial Monitor, UK Plug
BASDISP-HDMI-EU	10.1 inch Industrial Monitor, EU Plug

I/O Modules – Expanding the Number of Points in the Field

For those installations that require that field input/output devices must be distributed away from the central controller or simply that more points are needed in Class 2 field installations, Contemporary Controls has a solution for both BACnet MS/TP and Modbus RTU systems. Cost-effective Cube I/O modules are available with analog and digital inputs and outputs in varying combinations.

Cube I/O modules are available with varying configurations of analog and digital inputs and outputs. Digital input modules can be configured to support either "wet or dry" contacts up to 10 points. There are also analog input modules to measure voltage and resistance, analog output modules that output voltage, relay output modules and mixed digital input/output modules. All modules operate from a 24 VAC/VDC supply.

Cube I/O BACnet MS/TP

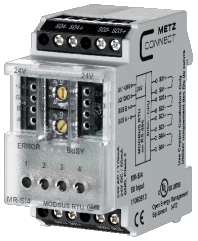


Input Models	Description
BMT-DI4	BACnet MS/TP 4 Digital Inputs
BMT-DI10	BACnet MS/TP 10 Digital Inputs
BMT-SI4	BACnet MS/TP 4 Retentive Pulse Counting Inputs
BMT-AI8	BACnet MS/TP 8 Resistance or Voltage Inputs

Output Models	Description
BMT-DO4	BACnet MS/TP 4 Digital Relay Outputs w/ HOA
BMT-AO4	BACnet MS/TP 4 Analog Outputs 0 to 10 VDC

Mixed Models	Description
BMT-DIO4/2	BACnet MS/TP 4 Digital Inputs & 2 Relay Outputs w/ HOA

Cube I/O Modbus RTU



Input Models	Description
MR-DI4	Modbus RTU 4 Digital Inputs
MR-DI10	Modbus RTU 10 Digital Inputs
MR-SI4	Modbus RTU 4 Retentive Pulse Counting Inputs
MR-AI8	Modbus RTU 8 Analog Inputs

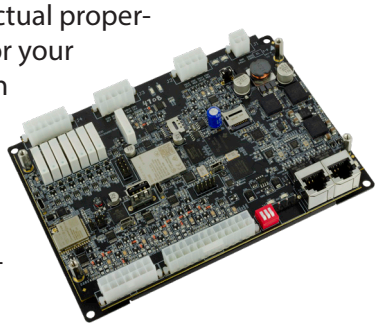
Output Models	Description
MR-DO4	Modbus RTU 4 Digital Relay Outputs w/ HOA
MR-AO4	Modbus RTU 4 Analog Outputs 0 to 10 VDC

Mixed Models	Description
MR-DIO4/2	Modbus RTU 4 Digital Inputs & 2 Relay Outputs w/ HOA

High Value Solutions for Unique Projects

Contemporary Controls designs and manufacturers networking and control products used in various automation industries where performance and reliability are essential. These products, along with our comprehensive design experience, allow us to offer original design manufacturing (ODM) services where we provide the product you require under your brand.

With more than 40 years of experience in electronics design, development and manufacturing, we have a rich inventory of intellectual property that can be tapped for your next project. Two design and manufacturing locations provide private-label and ODM services. Leverage our design and manufacturing resources to reduce your costs and time-to-market.

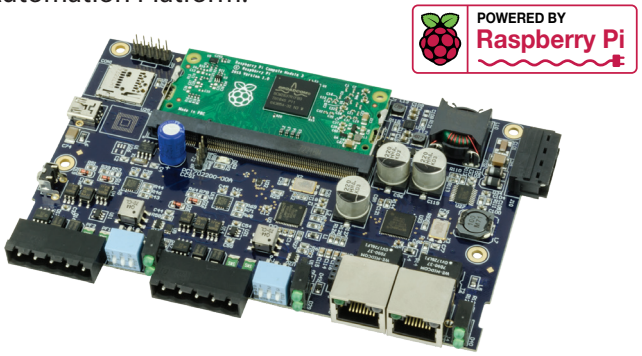


RTU38 Advanced RTU Controller

Case Study: Application Ready Platform Automation Platform

The Automation Platform is a robust and powerful hardware platform ready to run any application software compliant with the Raspberry Pi. Intended for non-stop automation projects, the Automation Platform builds upon the high-speed Raspberry Pi Compute Module by including two isolated EIA-485 serial ports suitable for BACnet MS/TP, Modbus RTU or other serial protocols, and two Ethernet ports.

If your application software can run on a Raspberry Pi, it will most likely run on our Automation Platform. Use our hardware expertise to bring your software application to market faster under your brand with the Automation Platform.



Raspberry Pi compliant Automation Platform

What We Design, We Make

Contemporary Controls has two manufacturing locations, one in Downers Grove, Illinois and the other in Suzhou, PRC. Both operations are ISO9001:2015 registered and are under Underwriters Laboratories (UL) surveillance. In addition to self-manufacturing,

Contemporary Controls sources complementary networking and control products for the convenience of our customers. The US operation has modern Panasonic multi-function, surface-mount technology (SMT) process lines that produce sophisticated, lead-free, high-density printed circuit board assemblies (PCBAs) that incorporate ball-grid-array (BGA) components. These PCBAs are then installed into their enclosures, tested and stored in their final packaging in an environmentally-controlled warehouse ready for worldwide shipment.

While the US operation is ideal for prototyping, and producing high-mix, low-volume and Made in USA products, the China operation with its sourcing partners are better suited for high-volume, low-mix production. In either location, intellectual property is protected.

Both plants adhere to ISO9001 quality procedures and follow IPC workmanship standards recognized in the electronics industry. Both plants are under Underwriters Laboratories (UL) surveillance.

Quality Policy

Contemporary Controls develops, manufactures and markets innovative networking and control products to the benefit of our automation customers worldwide. We are committed to delivering products and services that meet customer requirements and strive to exceed their expectations through our continuous improvement efforts.

Application Ready Platforms

APPI

- Raspberry Pi CM3+ (1.2 GHz)
- 1 GB RAM
- pSLC eMMC Flash (5/10 GB)
- Linux Operating System
- 2 Individual 10/100 Mbps Ethernet ports
- Optically Isolated EIA-485 ports
- Optional daughter boards for Wi-Fi (802.11 b/g/n), or LTE/4G cellular
- FCC, CE and EMC compliance

APTI

- 1 GHz TI AM3352 CPU
- 512 MB RAM
- pSLC eMMC Flash (5/10 GB)
- Linux Operating System
- 10/100 Mbps Ethernet ports
- Optically Isolated EIA-485 ports
- Optional daughter boards for Wi-Fi (802.11 b/g/n), or LTE/4G cellular
- FCC, CE and EMC compliance
- -40°C to +75°C wide-temp operation

Potential Applications:

- Protocol converter
- Router or gateway
- Edge Controller
- Supervisor
- IoT/Edge cloud gateway

APPI-12 APTI-2

Unmanaged Switches

Diagnostic Switches

Media Converters

IP Routers

Power over Ethernet (PoE)

CTRLink®

Ethernet Built for Buildings

Whatever the Ethernet infrastructure need, a solution is available from CTRLink. For simple systems, plug-and-play unmanaged switches can be put into service without adjustments and provide a simple, cost-effective method for expanding Ethernet networks. Most models include features such as auto-MDIX and auto-negotiation.

For troubleshooting, the diagnostic switch retains all the virtues of a switch with one exception – no address learning. All messages – directed, multicast, broadcast – are flooded to all ports on the switch allowing a protocol analyzer tool such as Wireshark the ability to observe all traffic on the network.

If no fiber optic ports are available on equipment to be connected, a media converter will do the trick. Media converters offer the lowest latency because they are pure media converters and not 2-port switches. Conversion from copper to fiber optic cabling is possible without the loss of auto-negotiation features.

While Ethernet switches can expand a single Ethernet network, IP routers connect two Internet Protocol (IP) networks together, passing appropriate traffic while blocking all other traffic. One of the networks is designated the local-area-network and the other the wide-area-network. IP routers are used to isolate traffic and for gaining access to remote equipment. CTRLink provides several secure wired and wireless network solutions.

Power over Ethernet (PoE) provides data and power over one cable, thereby eliminating the need for additional power supplies for Ethernet-enabled devices placed in challenging locations, such as wireless access points or IP cameras on a ceiling or outdoors.

Smoke and Fire UL 864

The CTRLink product line includes products that comply with the requirements of Underwriters Laboratories (UL) 864 Control Units and Accessories for Fire Alarm Systems 10th Edition. A UL recognized component has already been evaluated and tested in accordance with UL's component safety standards, streamlining the qualification process for the system supplier.

Secure Remote Access

A VPN can provide secure access to remote job sites while giving systems integrators the flexibility to monitor and maintain systems from the convenience of their home or office. Contemporary Controls offers three VPN solutions to meet your remote access needs—RemoteVPN subscription service, and Self- HostedVPN and BridgeVPN solutions.

Contemporary Controls' EIPR-V, EIGR-V series, and EIGR-C series Skorpion IP routers support OpenVPN® client functionality and can be used with the RemoteVPN subscription service. The EIGR-V and EIGR-VB routers can be configured as VPN servers with Self-HostedVPN and BridgeVPN solutions.

RemoteVPN - Simplified Secure Remote Access Service

Contemporary Controls' RemoteVPN subscription service provides secure communication and the convenience of remote access without having to maintain the VPN server. Hosted on the Internet and maintained by Contemporary Controls, RemoteVPN incorporates a cloud-based OpenVPN server, OpenVPN clients for workstations and mobile devices, and OpenVPN routers installed at job sites.

Self-Hosted VPN — User Managed Secure Remote Access

For network savvy users, Contemporary Controls' Self-HostedVPN solution utilizes the EIGR-V Skorpion Gigabit IP router configured to operate in OpenVPN server mode. This allows the router to act as the VPN server capable of supporting Contemporary Controls' wired and cellular routers as VPN clients. This Self-HostedVPN solution provides wired or wireless remote access for multiple clients – up to 15 wired/cellular IP routers in OpenVPN client mode and 15 OpenVPN clients on PC/tablet/phone.

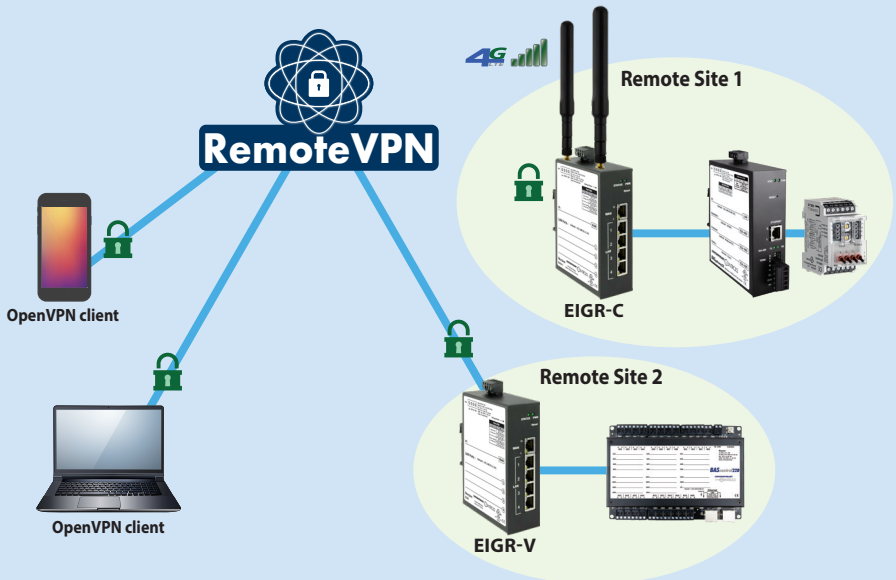
BridgeVPN — Single-Site Secure Remote Access

For single-site, remote access solutions, Contemporary Controls also offers a BridgeVPN solution which utilizes the EIGR-VB Gigabit IP router configured to operate in OpenVPN server mode as a wired bridge VPN server. This BridgeVPN solution can support up to 10 VPN clients on Windows/Linux PCs.

These Self-HostedVPN and BridgeVPN OpenVPN clients can be located anywhere that has Internet connectivity.

RemoteVPN Service

The RemoteVPN service provides remote access without concern for intervening firewalls. This cloud-based VPN server provides secure encrypted connections between VPN clients installed on the systems integrator's PC or mobile device and the other permanently installed on our VPN router located at the job sites. This approach provides the creation of two secure VPN tunnels with no concern for intervening firewalls. Connections can be wired or wireless. Multiple remote sites can be accessed simultaneously using the RemoteVPN service.



About BASautomation Building on BACnet

Contemporary Controls is unique in the industry by supplying products that maximize the benefits of both BACnet and Ethernet. BACnet, an internationally recognized building automation standard, can take you from the field level to the Internet. With buildings pre-wired for Ethernet, BACnet/IP is the ideal choice for building automation systems. Ethernet is everywhere and understood by many. With BASautomation – Building on BACnet and CTRlink – Ethernet Built for Buildings, Contemporary Controls provides the system building blocks for networking, integrating and controlling your building.

BASautomation products have provided solutions worldwide

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