control
NETWORK

News on the industry & Information
for Contemporary Controls'
Most Valued Customers

TRADE SHOWS

Learn the latest innovations in technology by attending these trade shows.

Light + Building 2008
April 6–11
Frankfurt Exhibition Fairground
Hall 9.1, Stand B15
Frankfurt, Germany

CSIA 2008 Executive Conference
May 1–3
Marriott Riverfront Hotel
Savannah, GA USA

Niagara Summit 2008
May 4–6
Wesley Chapel, FL USA

Over **30** Years

In Networked Controls

CONTEMPORARY CONTROLS

Connecting Networks Worldwide

Finding the Easiest Path

In a building automation project, sometimes the easiest path for increasing additional I/O is the one that uses the existing Ethernet infrastructure. It may not be the shortest, but it might be the most convenient for the building owner, the tenants and the building automation contractor. Convenient for the building automation contractor since minimal new wiring is required; convenient for the tenant since office area disruption (ie: relocating office equipment and utilizing ladders to move ceiling tiles) is not required, and of course convenient for the building owner since he has happy tenants and a contractor that can do the job in a timely fashion at a low cost.

Of course I am referring to installing the BAS Remote—the BACnet/IP-compliant I/O unit with 6 universal I/O points and 2 contact closures—that can easily be installed anywhere in a building where an Ethernet switch port is readily available, and is communicating with a BACnet/IP-compliant building automation controller. When using the BAS Remote, a major portion of the wiring is already in place. All that is required is a short run of CAT5 (or better) from the existing Ethernet switch port to the BAS Remote and 24 VAC to power it up (or 24 VDC, your choice). Keep in mind that Universal I/O are truly universal—meaning each I/O point is an analog output or analog input in addition to sensing contact closure or temperature or pulse input. This Universal I/O provides the ultimate flexibility of connecting field devices. Imagine measuring temperature from a thermistor, CO_2 as a voltage analog input, humidity as a current analog input, a modulating actuator using both a voltage analog output to drive to a set point and a voltage analog input to read the position, a voltage analog output to establish a VFD speed reference, and a contact closure to initiate the drive.
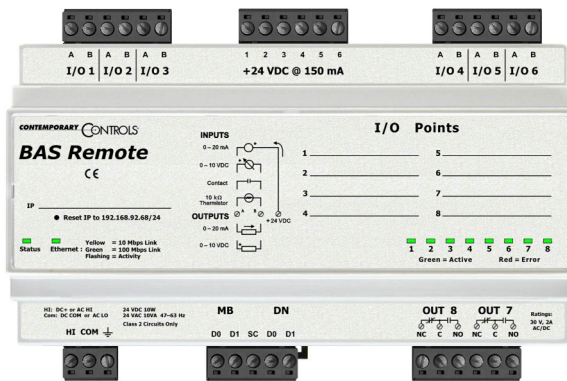
Often, we refer to the BAS Remote as the "oops" I/O. There are many projects where a few points of I/O have been forgotten. The BAS Remote is an excellent choice to pick up the I/O points if proprietary network wiring is not easily available, but there is easy access to an Ethernet switch port. Also for those quick little projects where temperature, humidity, and CO_2 need to be monitored and office disruption should be minimized, the BAS Remote can cost-effectively do the job.

A built-in 24 VDC 150 mA loop power supply is now standard on all BAS Remotes. This loop power supply means one less device you need to purchase or power up since we use the 24 VAC power you supply to the BAS Remote and convert it to the 24 VDC required by a loop device. Just another way to keep your costs down.

If you have any comments or questions, please contact me **Joe Stasiek at jstasiek@ccontrols.com or 630-963-7070 x116**.

China Subsidiary Recognized as Full-Service Contract Manufacturer

Contract manufacturers have become major players of production in many industries worldwide.

Contemporary Controls (Suzhou) Co. Ltd (CCC) offers a full-range of services for their global customers as a contract manufacturer. Contract manufacturing dates back to the mid-70s when several companies sprang into action to handle the overflow of printed circuit board assembly. Today, this industry is expected to maintain a 15% to 20% annual growth rate.

Plant Manager Basile Waite said it just made sense to expand the facility's production capability and expertise. "We made the decision to foster a relationship with other companies looking to save money and time, and whose quality standards are similar to our own," he explained.

CCC is able to provide a complete turnkey solution for their customers meaning the sourcing of parts, locating suppliers, supply chain management, conceptual design to product fulfillment, and logistics. "This is essential to our customers," said Waite. "By working together with us, our customers can focus more resources on the core part of their business...such as research & development, marketing, and sales."

The China facility is viewed as a progressive company in complying with all current legislation in terms of employee safety and the environment. For example, China just recently passed its own version of RoHS legislation, but CCC converted to a lead-free operation two years prior.

As a contract manufacturer, Waite said CCC offers many benefits including speed, economy, efficiency, and flexibility. "Speed sets us apart from other contract manufacturers," he said. "We respond very quickly. We can accomplish a one week turnaround time for most products, and usually we can provide new customers a sample in two weeks."

Waite realized that customers expect continuing cost reductions. "CCC strives to identify new methods of improving efficiency in all areas, including design and engineering support," he explained.

In terms of economy, CCC takes advantage of the lower cost structure in China. In terms of setup and client batches, flexibility is the key word in volume. "Our customers request that we design new products or make modifications to existing ones," he explained. "Either way, we're extremely flexible. And our client batches vary anywhere from 100 up to 20,000 units."

Waite commented that CCC is successful because they're proactive in communication. "We have local skilled individuals as well as Western personnel who are able to converse with people in their native language," he said. "We have really bridged this gap. I think understanding our customers' expectations, the quality mindset, and knowing how to effectively communicate across cultures has helped us do well." Your may direct all inquiries about contract manufacturing to Basile Waite: basile_waite@ccontrols.com.cn.
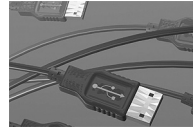
Can Your Network Survive Excessive Broadcasts

High levels of broadcast traffic may occur in most Industrial Ethernet networks and can hog available bandwidth, rob CPU time from end devices and in extreme cases may cripple a network. This situation can exist due to improperly set STP or RSTP parameters or malfunctioning computers or end devices (see "The Value of Rate Limiting" at www.ccontrols.com/2007_08_01_archive.html). Routers can block broadcasts or other problematic traffic, but they are usually more expensive than switches and, generally, not as fast as switches.

Since some amount of broadcast traffic is likely present on your network, wouldn't you like to know how much is too much? A helpful management feature is *rate limiting* with which you can control your exposure to these levels of traffic. But the question becomes, "How much traffic can you sustain?" You can create your own traffic generator and then slowly raise the amount of broadcast traffic using rate limiting until you see a problem. This should help you establish the optimal rate limiting levels. You should probably set all message types to this level. Although broadcasts are the most common type of flooded messages you see during a message storm, you can also see directed or multicast messages arriving at a very high rate.

With a managed switch you can "fine tune" your message storm tolerance as described below—if certain precautions are taken. On the PC used as your test station, use a fixed IP address instead of DHCP and disable your firewall.

Procedure: Connect your PC to your LAN via a managed switch. On this switch, loop two ports together —taking care to disable RSTP or STP on the ports you have interconnected in creating the loop. Ping your subnet broadcast address. (For example, if your IP address is 192.168.1.1 and your netmask is 255.255.255.0, then your subnet broadcast address is 192.168.1.255.) This creates a traffic generator which can test your system survivability to various levels of traffic. Now you can adjust the amount of traffic being generated by the traffic generator. (Although some unmanaged switches offer broadcast storm control, a managed switch gives you the ability to control the level of traffic.)

Warning! Performing the above procedure on a production or office network will most likely cause communications problems —only a test network should be used.

By Bill Greer, Senior Product Specialist

Case Study

AI-SRVR Links Ultrasonic Plastic Welders to Ethernet Backbone

Dukane Corporation, St. Charles, IL, is a global manufacturer and distributor of ultrasonic plastic welding systems. One of their current products, the Dynamic Process Controller™ (DPC), previously offered a graphic user interface via a Man-Machine Interface (MMI) using the ARCNET® communication protocol. Software Engineering Manager Duke Syvongsa said due to obsolete components, the MMI product was no longer available. "We then offered our customers a browser-based interface (iPC) running on the host PC and connecting with the plastic welding system via serial and ARCNET ports. Since it exchanged the data with the welder via serial communication using 19.2k baud rate, the responses were slow and the through-put was low."

Subsequently, Dukane provided their customers with a better and faster user interface program, the DPC-GUI. Syvongsa said it was developed after the DPC MMI product was discontinued and the iPC (Java application) product fell short of performance expectations. "The DPC-GUI can communicate to multiple DPC systems over a standard Ethernet network, while the iPC product communicated with only one dedicated DPC system using an RS-232 serial port connection," he explained.

With the design of the DPC-GUI came the need for an ARCNET device that would enable Dukane engineers to switch from serial communication to Ethernet to increase through-put. Contemporary Controls' AI-SRVR was designed for converting ARCNET packets to Ethernet packets or vice versa. Dukane is using the AI-SRVR-1/TB5 models. "This product enables the DPC-GUI application to network to DPC systems over a conventional Ethernet network instead of ARCNET," explained Syvongsa. "We have noticed that through-put is significantly faster than the serial communication. And for engineers/developers, with the AI-SRVR, they don't have to redesign the Ethernet communication card in order to improve through-put." Syvongsa said the implementation of the AI-SRVR yielded improved communications speed and increased production rates.

Equipment Upgrades Keep Us at the Forefront of Electronic Manufacturing

International News

Since the establishment of Contemporary Controls (Suzhou) Co. Ltd (CCC) five years ago, Plant Manager Basile Waite said we're in a rapidly changing industry. "Components are getting smaller and more complex," said Waite. "Manufacturing is converting to a lead-free operation. With this in mind, it was a strategic investment to purchase cutting-edge equipment and streamline our assembly lines. Higher tech equipment means greater precision and better quality products for our customers."

Waite explained that upgrades were necessary to improve the capability of the older equipment in addition to increasing the capacity which will help CCC become a more flexible manufacturer. "By more flexible, I mean we can do either small volume or large volume," he added. "It's completely scalable."

He said that CCC fully automated its SMT (Surface Mount Technology) line by including board stackers and buffers which allow personnel to easily manage a line in case of large volume. A new Panasonic® pick & place machine was installed. "It increased our placements to more than 10,000 per hour," said Waite. "We added new assembly lines; for example, one for final packaging. And we even enhanced our testing equipment so that we could better ascertain product quality."

Plant personnel received training and certification on the new machines by the equipment suppliers. As part of the continuous education program at CCC, training is held three times annually.

Waite said he is more than pleased with the upgrades. "If we're facing an order of 1,000 or 10,000, we're able to accommodate it without any modification in production times or number of shifts," he explained. "We've reduced our downtime to 20%. We can accomplish a changeover in 20 minutes tops. By having a higher volume capability, we can get much done in one shift. This means we can offer our customers ultra-reliable products to meet their industrial requirements."
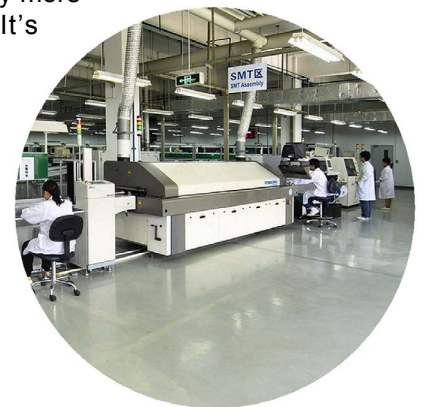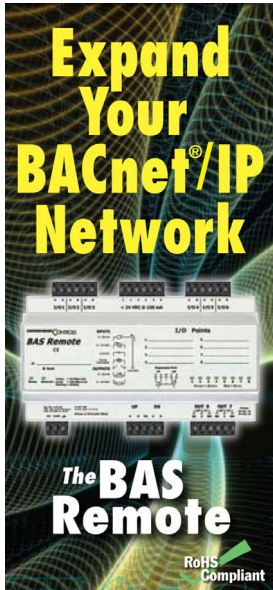
CONTEMPORARY CONTROLS®

Contemporary Control Systems, Inc.
2431 Curtiss Street
Downers Grove, IL 60515 USA

Address service requested.

Expand Your BACnet®/IP Network

BAS Remote

The **BAS Remote**

RoHS Compliant

US fax back and e-mail:
1-630-963-0109
info@ccontrols.com

UK fax back and e-mail:
+44 (0)24 7641 3923
ccl.info@ccontrols.com

Germany fax back and e-mail:
+49 (0)341 520359-16
ccg.info@ccontrols.com

China fax back and e-mail:
+86 512 68095966
info@ccontrols.com.cn

- Choose the easiest path in your building automation project—use our BAS Remote product.

- As a contract manufacturer, our China subsidiary provides a complete turnkey solution for their customers.

- This month's Tech Update examines the management tool "rate limiting". Read how beneficial it can be in controlling excessive broadcasts in your Ethernet network.

For your automation networking needs visit: www.ccontrols.com