control NETWORK

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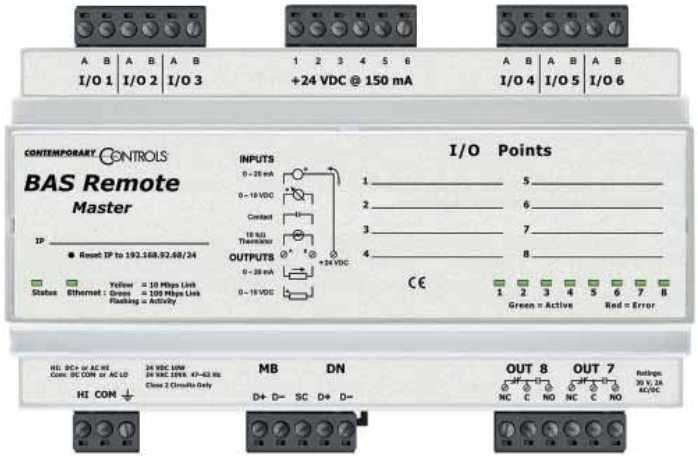
Sedona Framework Support added to the BAS Remote

We call the BAS Remote a versatile building automation appliance since it can function as a BACnet/IP compliant device with universal I/O points; a Modbus serial to Modbus TCP router, and it can serve up web pages. However, the versatility of the BAS Remote has just improved since it now supports Tridium's Sedona Framework. With the addition of a Sedona virtual machine (SVM) in the BAS Remote, the BAS Remote can now execute standalone control schemes while benefiting from the ease of drag-and-drop programming. The BAS Remote retains its web server configuration capability and its ability to communicate over a BACnet/IP network while functioning as a true application specific controller (ASC).



Revision 3 BAS Remotes will include a Sedona virtual machine

According to Tridium, "the Sedona Framework™ is the industry's first, open source development framework that provides a complete software platform for developing, deploying, integrating, and managing pervasive device applications at the lowest level. It brings the power of programmable control and the Internet down to extremely inexpensive devices. The Sedona Framework distributes decision making control and manageability to any device and brings intelligence and connectivity to the network edge and back."

Small devices are not the only devices that can benefit from Sedona. The ARM9 Linux engine in the BAS Remote is certainly not a small device targeted for Sedona, but it fits in quite well with the BAS Remote. The Sedona Framework has a seamless interface to IP networks and can directly connect to Tridium's Niagara Framework — a popular building automation integration platform — via the BAS Remote's Ethernet port using the SOX protocol. Programming is accomplished using either a Niagara Workbench or a soon-to-be-released Sedona Workbench over Ethernet. A rich collection of Sedona control components, including PID loops, are interconnected on a wire sheet using virtual wires. Once the program is developed, it is stored on the BAS Remote and executes when powered up.

Those familiar with Niagara Framework would be completely comfortable with Sedona Framework. Control strategies

can be extended from Niagara Framework platforms, such as a JACE, to Sedona applications on the BAS Remote over Ethernet with ease. For those unfamiliar with Niagara Framework, Sedona Framework can be quickly learned since it is a much simpler platform. An inexpensive programming tool called Sedona Workbench will soon be available from Contemporary Controls.

The Sedona Virtual Machine will be included in all BAS Remote Master V3.X releases beginning in September 2009. Also included in the 3.0 release will be support for BACnet Change of Value (DS-COV-B), Read Property Multiple (RPM), Foreign Device Registration (FDR), and Modbus register to BACnet object mapping.

For those individuals interested in beta versions of Sedona Framework running on the BAS Remote, contact Joe Stasiek, sales manager at 630-963-7070 Ext 116, or email to jstasiek@ccontrols.com.

TechnologyUPDATE

BACnet Discovery and the BAS Remote

BACnet supports the discovery of devices and objects within these devices. Using the BACnet discovery function with the BAS Remote (BR) from Contemporary Controls is normally quite simple. But as you change BR channel definitions on its webpage, its BACnet objects also change — that is, the BR has configurable I/O. Therefore, its BACnet objects are not fixed. If your client supports object discovery, this is not an issue, but for others this can be confusing. For example, if you select 0–10V Analog Input on channel 1, then channel 1 will be represented by an Analog-Input instance 1.

Each channel must be configured as an Analog Input, Analog Output, Binary Output or Binary Input — except for relay channels 7 and 8 which are only Binary Outputs. If your BACnet application supports discovery, you should first configure the BR channels then select the matching object instance types in your software.

The BR object instances are identified by channel number. For example, channel one will always be instance one — but depending on how you have configured channel one via the BR webpage, it can be:

Analog Output instance 1
Analog Input instance 1
Binary Input instance 1

Channels 2–6 work in the same manner, but channels 7 and 8 can only be Binary-Output instance 7 and Binary-Output instance 8.

When you connect expansion units to the BR, more objects within the BR become available. With 32 channels (BR with 3 expansion units) you will have 32 object instances of the types which have been configured. When using three expansion units, channels 7–8, 15–16, 23–24 and 31–32 are all Binary-Outputs.

Contemporary Controls Helps China Go Green

The Chinese government has identified wind power as a clean energy alternative to coal, triggering rapid growth in the highly competitive wind energy market in China. The northeastern province of Inner Mongolia is considered a prime location to develop wind farms due to the strong winds and available land. Contemporary Controls went on a three-day journey to the remote location to meet with wind farm engineers and help solve their needs for redundant Ethernet communication.

Up to 1,000 towers can occupy one wind farm.

On a wind farm, each wind tower has a 1.5 MW turbine and controls at the top of the tower, and additional controls at the base of the tower. Up to 1000 towers can occupy one wind farm. These towers communicate with a central control room over single-mode fiber optic cable in a ring topology. If the ring is broken at any one point, communication is not impacted due to the redundant path inherent in a ring topology. Situated in an outdoor environment, all the controls and Ethernet equipment must be able to tolerate extreme temperatures, lightning strikes, and potential electrical interference from high power turbines. Because the job site is so remote, the reliability of the equipment is a major concern.

The Contemporary Controls' EISX compact managed Ethernet switching hub met the needs of the project because of its outdoor temperature rating, its enhanced EMC compliance, its RapidRing® fiber ring redundancy, and its support of the SNMP protocol. The unit is extremely compact, providing six 10/100 Mbps copper ports and two single-mode fiber ports. In response to a customer request, firmware was modified to support several rings in order to comply with field cabling constraints.

The EISX8M-100T/FCS is a highly compact Ethernet switch. The fiber ring connections are shown on the right.

This was an interesting project; but only represents the beginning of more projects as the world seeks out alternative sources of energy.

CONTEMPORARY CONTROLS

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LATEST NEWS

- *Sedona Framework Support added to the BAS Remote*
- *Contemporary Controls meets with wind farm engineers to help solve their needs for redundant Ethernet communication*

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