

## BAS Remote Product Family

### Datasheet

#### Features

##### Versatile Control Device – Remote I/O, Router, Gateway and Controller

- ◆ Web Configurable
- ◆ BACnet/IP Remote I/O
- ◆ Modbus TCP Remote I/O
- ◆ Modbus Serial to Modbus TCP Router
- ◆ Modbus Serial to BACnet/IP Gateway
- ◆ Modbus Master to Attached Modbus Slaves
- ◆ Powered by Sedona Framework Controller
- ◆ Power over Ethernet (PoE)
- ◆ Customizable web pages
- ◆ Web Services



##### Flexible Input/Output Capability – Additional plug-in Modules for I/O Point expansion

- ◆ Web Configurable
- ◆ 6 x Universal I/O points
- ◆ 2 x Relay Outputs
- ◆ Thermistor, voltage, current, contact closure and pulse inputs
- ◆ Voltage, current and relay outputs
- ◆ 2-wire Modbus Serial Expansion port
- ◆ 2-wire expansion port for up to three expansion I/O modules

## Description

The BAS Remote series of products provides the System Integrator with a flexible building block when integrating diverse building automation protocols or when expanding the number of points in a building automation system. By supporting open system protocols such as BACnet®, Modbus and Sedona Framework™ SOX, the BAS Remote series is easily adaptable. For small systems, it can operate stand-alone. For larger systems, it can communicate to supervisory controllers over Ethernet.



The BAS Remote Master provides the ultimate in flexibility. It can be used for expansion I/O at remote locations where an Ethernet connection exists. Its built-in router and gateway capabilities address unique integration needs where more than one communications protocol is involved. It can operate as a function block programmable controller with its resident Sedona Framework Virtual Machine. Powered by a Linux engine, the BAS Remote Master can operate as BACnet/IP and Modbus TCP remote I/O, Sedona Framework controller, Modbus Serial to Modbus TCP router, Modbus Serial to BACnet gateway and Modbus master to attached Modbus slaves all at the same time. A 10/100 Mbps Ethernet port allows connection to IP networks and popular building automation protocols such as Modbus TCP, BACnet/IP, and Sedona SOX. Six universal I/O points and two relay outputs can be configured through resident web pages using a standard web browser and without the need of a special programming tool. A 2-wire Modbus serial port can greatly expand the I/O count with built-in routing to Modbus TCP clients. If BACnet mapping is preferred, the unit incorporates a Modbus serial to BACnet/IP gateway. The BAS Remote Master also allows you to install custom web pages so you can view the status of your system in a convenient manner. And using its onboard Web Services, your IT department can easily interact with the BAS Remote Master. Additional universal I/O can be achieved with the simple addition of BAS Remote Expansion modules. The BAS Remote PoE has the same capabilities as the BAS Remote Master except it is powered over the Ethernet connection thereby providing a “One Cable Solution”.

## Web Configuration

The screenshot displays the 'BAS Remote Web Configuration' interface. The main window is titled 'CONTEMPORARY CONTROLS BAS Remote Web Configuration'. It features a 'Remote Configuration' section with a diagram of the 'BAS Remote Master' device and a 'Current Settings' section. The 'Current Settings' section shows a table of channels with their respective names, present values, and units. A modal window titled 'CONTEMPORARY CONTROLS BAS Remote' is open, showing the configuration for channel 4. The modal includes the following fields and options:

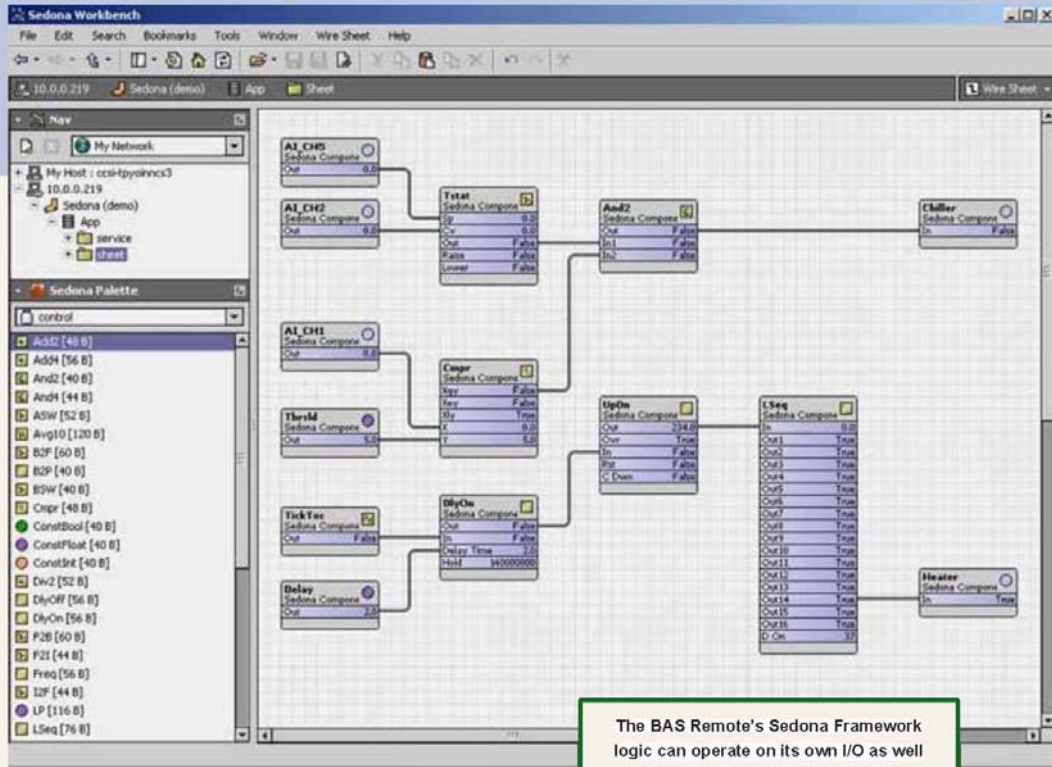
- Channel Type:** INPUT: 0-20mA
- Channel Name:** Prod Floor Temp
- BACNet Unit Group:** Temperature
- BACNet Unit Value:** DEGREES\_FAHRENH..
- BACNet COV Increment:** 0
- BACNet Description:** (empty text box)
- User Scaling:**
  - HIGH:** 20 (ACTUAL), 92 (SCALED)
  - LOW:** 4 (ACTUAL), 32 (SCALED)
- Buttons:** SAVE, CANCEL

**Typical I/O Point Configuration Screen**

## **Powered by Sedona Framework for Implementing Control**

The BAS Remote Master incorporates Sedona Virtual Machine (SVM) technology developed by Tridium and compatible with their Niagara Framework™. Using established Tridium tools such as Workbench, a system integrator can develop a control application using Workbench's powerful drag and drop visual programming methodology. Once developed, the program remains stored in the BAS Remote Master and executes by way of the SVM. The application can run standalone in the BAS Remote Master or interact with a program in a Tridium JACE supervisory controller over Ethernet. The number of potential applications is only limited by the imagination of the system integrator.

Tridium's Sedona Workbench or Niagara Workbench can be used to program Sedona running in the BAS Remote.



The BAS Remote's Sedona Framework logic can operate on its own I/O as well as that of connected Modbus serial devices. Also, a network connected Niagara Framework device can read or modify the operating state of the Sedona Framework function blocks.



**BACnet® Protocol Implementation Conformance (PIC) Statement**

## BACnet Protocol Implementation Conformance Statement (Annex A)

**Date:** 18 January 2010

**Vendor Name:** Contemporary Controls

**Product Name:** BAS Remote

**Product Model Number:** BASR-8M

**Applications Software Version:**                      **Firmware Revision:** 3.0                      **BACnet Protocol Revision:**

**Product Description:** BACnet/IP compliant 8-point remote Input/output device that allows a direct connection to Ethernet without the need of a BACnet router.

**BACnet Standardized Device Profile (Annex L):**

- |   |  |
|---|--|
| <input type="checkbox"/> BACnet Operator Workstation (B-OWS)<br><input type="checkbox"/> BACnet Building Controller (B-BC)<br><input type="checkbox"/> BACnet Advanced Application Controller (B-AAC) | <input checked="" type="checkbox"/> BACnet Application Specific Controller (B-ASC)<br><input type="checkbox"/> BACnet Smart Sensor (B-SS)<br><input type="checkbox"/> BACnet Smart Actuator (B-SA) |
|---|--|

**List all BACnet Interoperability Building Block Supported (Annex K):**

- |  |   |
|--|---|
| DS-RP-B Data Sharing — ReadProperty — B<br>DS-WP-B Data Sharing — WriteProperty — B<br>DS-RPM-B Data Sharing — ReadPropertyMultiple — B<br>DS-COV-B Data Sharing — ChangeOfValue — B | DM-DDB-B Device Management — Dynamic Device Binding — B<br>DM-DOB-B Device Management — Dynamic Object Binding — B<br>DM-DCC-B Device Management — Device Communication Control — B<br>DM-TS-B Device Management Time Synchronization B |
|--|---|

**Segmentation Capability:**

- Able to transmit segmented messages    Window Size:  
 Able to receive segmented messages    Window Size:

**Standard Object Types Supported:**

Object Type Supported	Can Be Created Dynamically	Can Be Deleted Dynamically
Analog Input	No	No
Analog Output	No	No
Analog Value	No	No
Binary Input	No	No
Binary Output	No	No
Device	No	No

No optional properties are supported.

**Data Link Layer Options:**

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> BACnet IP, (Annex J)<br><input checked="" type="checkbox"/> BACnet IP, (Annex J), Foreign Device<br><input type="checkbox"/> ANSI/ATA 878.1, EIA-485 ARCNET (Clause 8), baud rate(s):<br><input type="checkbox"/> MS/TP master (Clause 9), baud rate(s):<br><input type="checkbox"/> MS/TP slave (Clause 9), baud rate(s): | <input type="checkbox"/> Point-To-Point, EIA 232 (Clause 10), baud rate(s):<br><input type="checkbox"/> Point-To-Point, modem, (Clause 10), baud rate(s):<br><input type="checkbox"/> LonTalk, (Clause 11, medium:<br><input type="checkbox"/> Other: |
|--|---|

**Device Address Binding:**

Is static device binding supported? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)     Yes     No

**Networking Options:**

- Router, Clause 6 List all routing configurations, e.g., ARCNET-Ethernet-MS/TP, etc.  
 Annex H, BACnet Tunnelling Router over IP  
 BACnet/IP Broadcast Management Device (BBMD)  
 Does the BBMD support registrations by Foreign Devices?     Yes     No

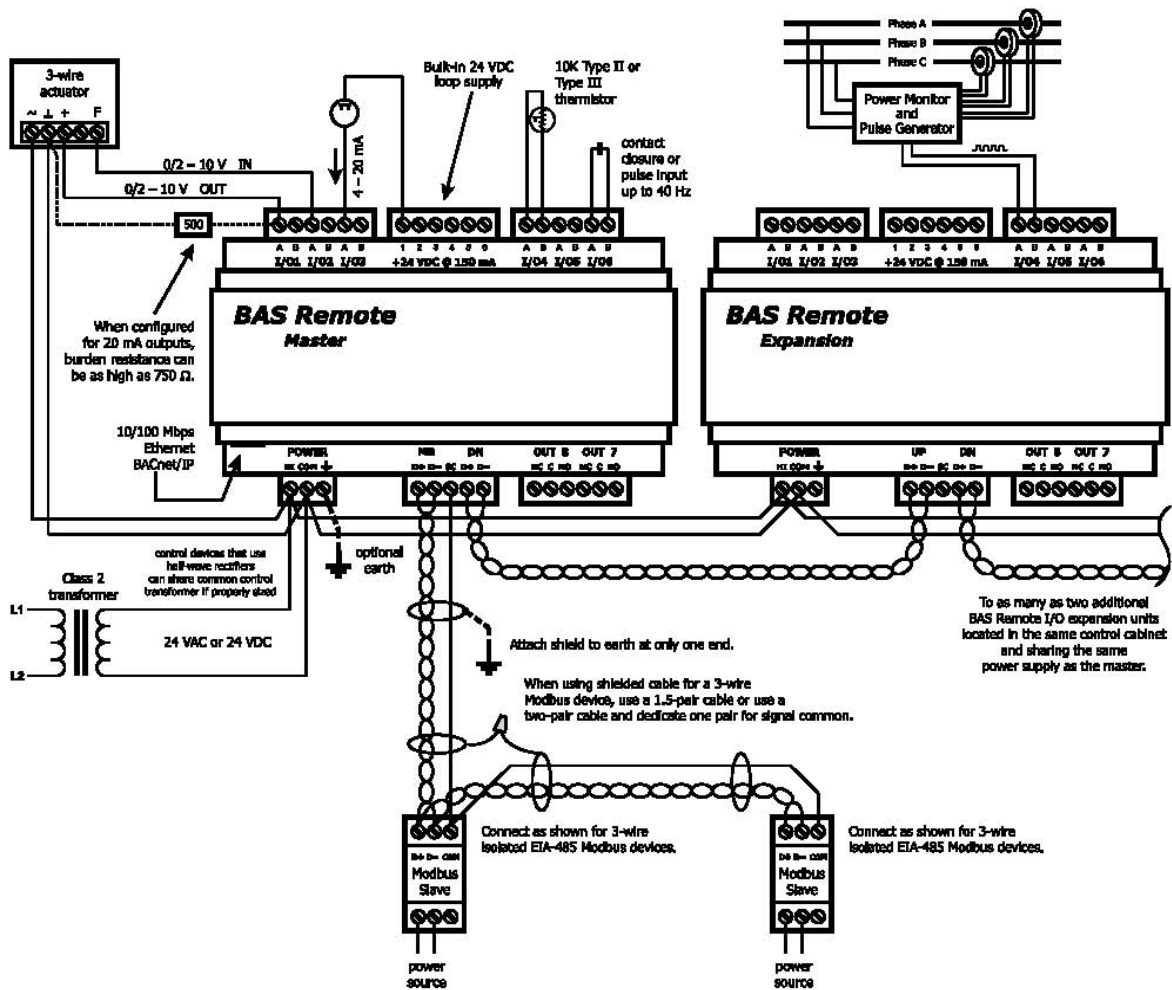
**Character Sets Supported:**

Indicating support for multiple character sets does not imply that they can all be supported simultaneously.

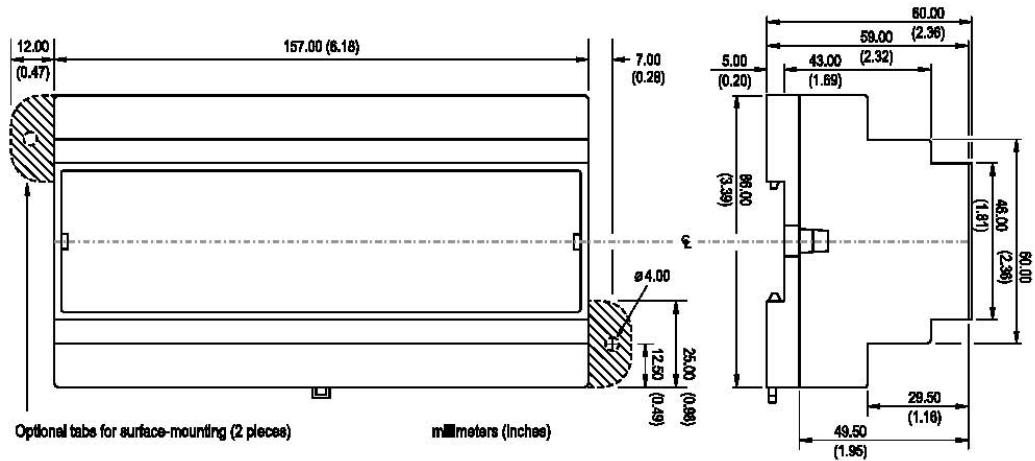
- |   |   |                                     |
|---|---|-------------------------------------|
| <input checked="" type="checkbox"/> ANSI X3.4 | <input type="checkbox"/> IBM/ MicrosoftDBCS | <input type="checkbox"/> ISO 8859-1 |
| <input type="checkbox"/> ISO 10646 (UCS-2)    | <input type="checkbox"/> ISO 10646 (UCS-4)  | <input type="checkbox"/> JIS C 6226 |

If this product is a communication gateway, describe the types of non-BACnet equipment/network(s) that the gateway supports:  
 Modbus gateway support.

# Wiring Diagram



## Dimensions



## Pin Assignments

### MIDI 10BASE-T/100BASE-TX Port Assignments

RJ-45	Usage
1	TD+
2	TD-
3	RD+
5	Not used
6	RD-
7	Not Used
8	Not Used

### ModBus (MB) Pin Assignments

D +	Data +
D -	Data -
SC	Signal Common



## Specifications

### Universal I/O (Channels 1 – 6)

Configured As	Characteristics
Analogue Output	0 – 10VDC or 0 – 20mA scalable by user. 12-bit resolution. Maximum burden 750 Ohms when using current output.
Analogue Input	0-10 VDC or 0-20 mA scalable by user. 10-bit resolution. Input impedance 100 K $\Omega$ on voltage and 250 $\Omega$ on current.
Temperature input	Type II or type III thermistors -35°F to +110°F (-37°C to +44°C).
Contact closure input	Excitation current 2 mA. Open circuit voltage 24 VDC. Sensing threshold 0.3 VDC. Response time 20 ms.
Pulse input	0-10 VDC scaleable by user. User adjustable threshold. 40 Hz maximum input frequency with 50% duty cycle.

### Relay Outputs (Channels 7 and 8)

Form “C” contact with both NO and NC contacts, 30VAC/DC, 2A, **Class 2 circuits only!**

Electrical	Master Unit		Expansion Unit		Master/PoE
	DC	AC	DC	AC	DC
<b>Input (Class 2 circuits ONLY)</b>					
Voltage ( $\pm 10\%$ )	24	24	24	24	48
Loop Supply (24 VDC nom.) (mA, Max)	150		150		150
Power	10W	17VA	8W	17VA	10W
Frequency	N/A	47 – 63 Hz	N/A	47 – 63 Hz	N/A
<b>Environmental</b>					
Operating Temp	0C to +60C				
Storage Temp	-40C to +85C				
Relative Humidity	10 – 95%, non-condensing				
Protection	IP30				

<b>Functional</b>	<b>Ethernet (Remote Master Only)</b>	<b>ModBus Serial</b>
Compliance	IEEE 802.3	V1.02
Protocol Support	ModBus TCP, BACnet/IP	RTU Master, ASCII Master
Data rate	10Mbps, 100Mbps	2.4 to 115.2kbps
Physical Layer	10BASE-T, 100BASE-TX	EIA-485, 2-wire, non-isolated
Cable Length	100m (MAX)	100m (Max)
Port connector	Shielded RJ-45	3-pin Terminal
LEDs	Green = 100Mbps	Flashing Green = Receive activity
	Yellow = 10Mbps	
	Flashing = Activity	
Flow control	Half duplex (back pressure)	
<b>Regulatory Compliance</b>		
EN55024	EN 61000-4-2 thro -6	
	EN 61000-4-11	
EN55022	CISPR 22	
CFR 47, Part 15, Class A	ANSI-C63-4	
RoHS		

## Ordering Information

<b>Part No:</b>	<b>Description</b>
CNSBASR-8M	Remote Master with 8 I/O points
CNSBASR-8X	Remote Expansion with 8 I/O
CNSBASR-8M/P	Remote Master with 8 I/O points plus PoE

## Contact

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