

## 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 navigation bar with 'Master Unit', 'Expansion Unit 1', 'Expansion Unit 2', and 'Expansion Unit 3'. The 'Remote Configuration' section shows a diagram of the 'BAS Remote Master' device with I/O ports labeled I/O 1 through I/O 6. A key indicates that a blue icon is used for 'Configure' and an orange icon for 'Force'. Below the diagram are buttons for 'Map', 'Configure Settings', and 'Set Time'. The 'Current Settings' section shows a table of channel configurations:

Channel Name	Value Input	Out
1	500	1 V
2		
3		
4	0 V	1 V

The modal window 'BAS Remote' is open, showing configuration for channel 4. The configuration fields are:

- 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)

The 'User Scaling' section contains the following values:

VALUE	ACTUAL	SCALED
HIGH	20	92
LOW	4	32

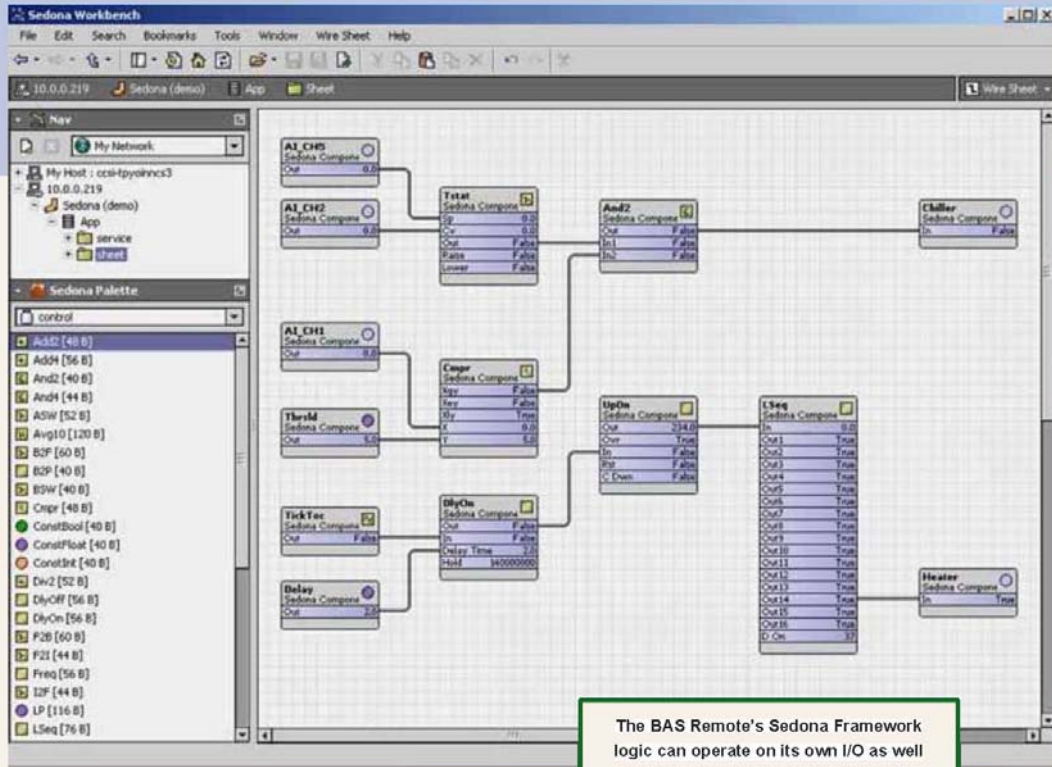
Buttons for 'SAVE' and 'CANCEL' are located at the bottom of the modal.

**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.



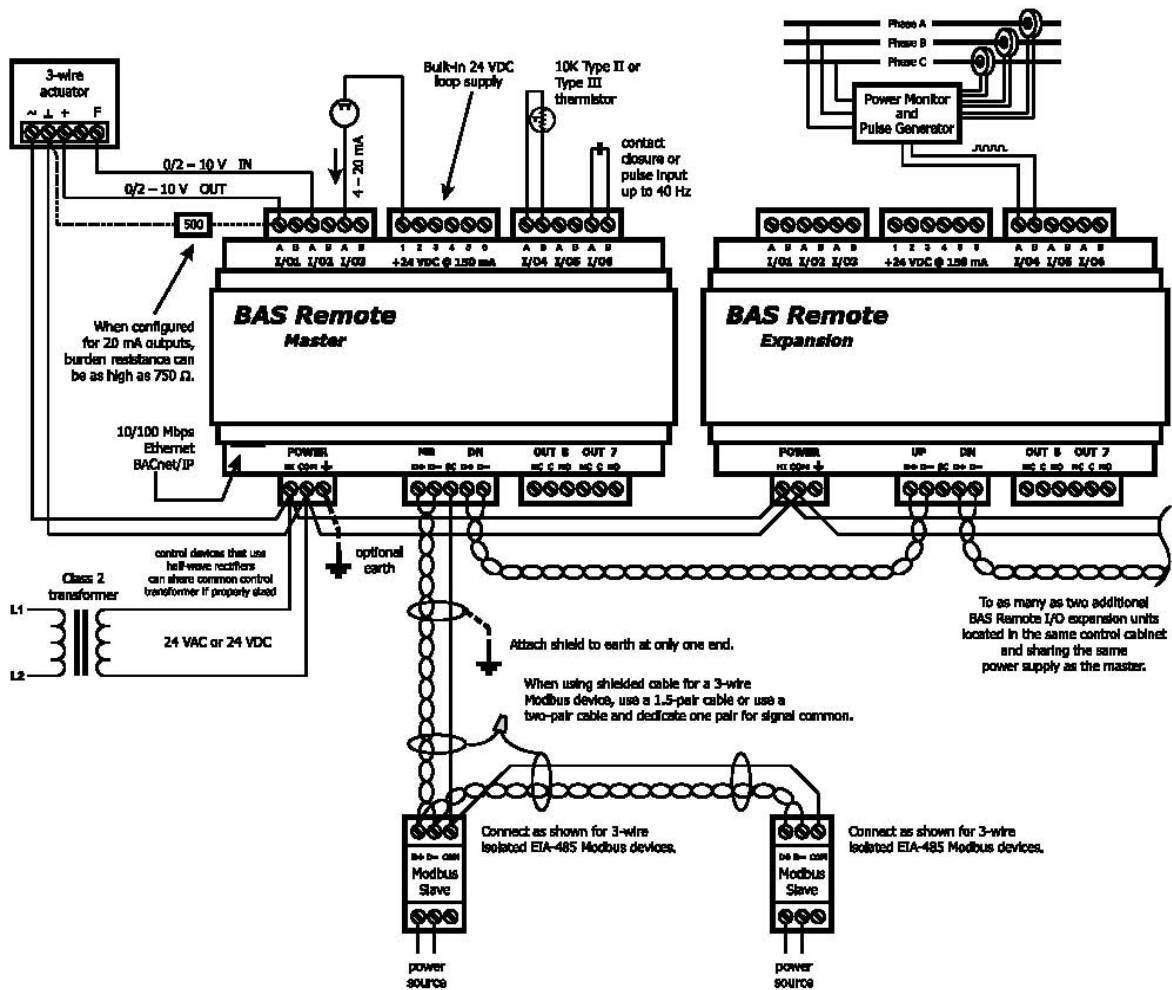
The BAS Remote's Sedona Framework logic can operate on its own I/O as well as that of connected Modbus serial devices. Also, a network connected Niagara Framework device can read or modify the operating state of the Sedona Framework function blocks.



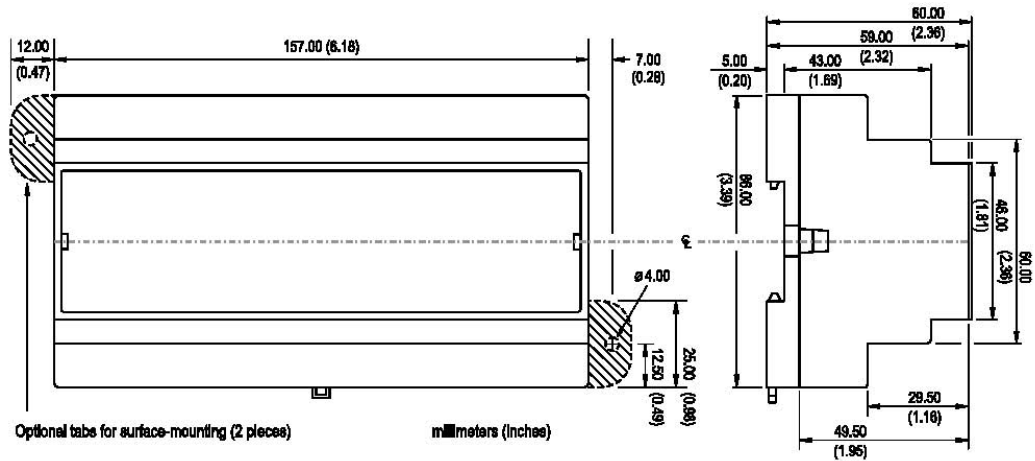
## BACnet® Protocol Implementation Conformance (PIC) Statement



# 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

### **Control Network Solutions Ltd**

Studio 7,  
Intec 2,  
Intec Business Park,  
Wade Road,  
BASINGSTOKE,  
Hampshire, RG24 8AG, England

Tel: +44 (0) 1256 818700

Fax: +44 (0) 1256 812520

Email: [sales@control-network-solutions.co.uk](mailto:sales@control-network-solutions.co.uk)

Web: [www.control-network-solutions.co.uk](http://www.control-network-solutions.co.uk)

CTRLink is a registered trademark of Contemporary Control Systems, Inc. No part of this publication may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, in part or in whole, without prior permission of Control Network Solutions. We reserve the right to make changes without notice to any products herein as part of its continued product development and improvements. We do not assume any liability arising out of the application or use of any product or circuit described herein.