

# BACnet® Router CBR / CBR/MOD / CBMR/MODex

The CBR range of products connects any BACnet MS/TP network to a BACnet/IP network and optionally acts as a Modbus gateway.

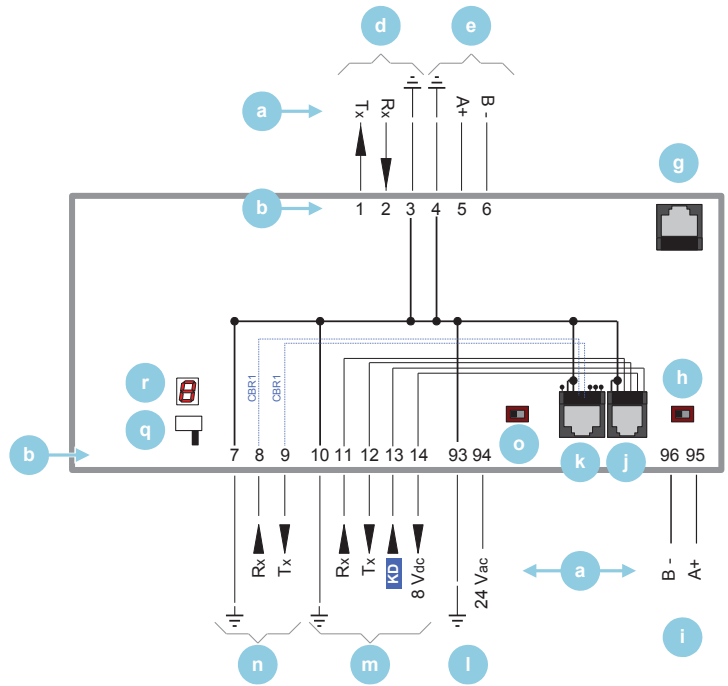
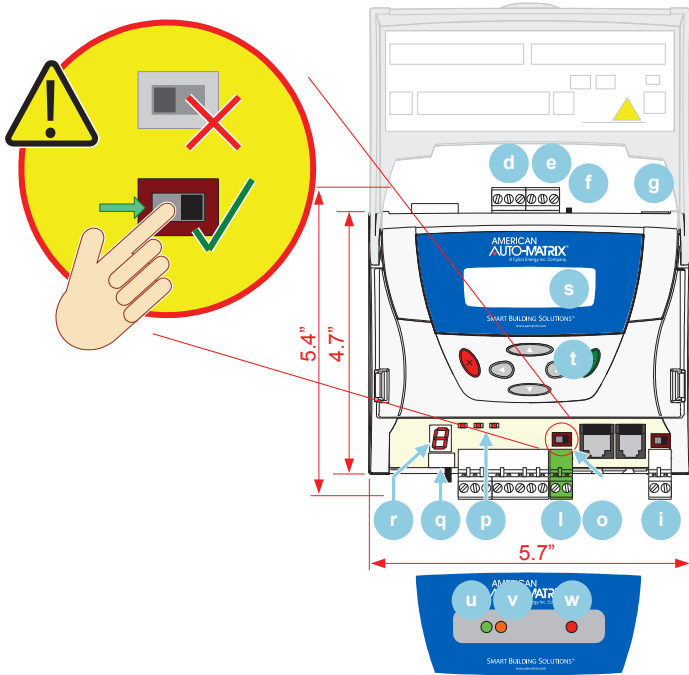
## BENEFITS


The American Auto-Matrix CBR BACnet Router is part of the BACnet range of products which offers reduced costs in terms of training, implementation, roll-out and maintenance.

Modular, extendible packages along with low installation costs mean a low entry point for building control. The future-proof CBR range provides forward and backwards compatibility, meaning it is an effortless upgrade path for existing American Auto-Matrix systems.



<b>BACnet/IP to BACnet MS/TP Routing</b>
<b>Optional Modbus Support</b> Serial RTU support, Master
<b>BBMD Support</b> Broadcasts messages from the local BACnet network to a device on a different BACnet network
<b>Foreign Device Registration</b> Allows a remote device to temporarily connect to the local BACnet network
<b>Networking</b> 10/100 Mbs Ethernet
<b>MS/TP Baud Rates</b> 9600, 19200, 38400 and 76800
<b>DIN Rail Mounted</b>
<b>Configured via Embedded Web Pages</b> Controller configuration can be adjusted using a standard web browser
<b>Diagnostics</b> On board diagnostics tools for viewing and troubleshooting BACnet MS/TP communications



**IMPORTANT:** The Battery Enable Switch (located above the Power 24 V AC connection) must be switched to the “Battery Enabled” position to ensure backup of controller settings such as Time Schedules and Globals when the UC32.netK is powered down. Press the ‘up’ key  on the UC32.netK keypad to check the battery status.



**CAUTION - DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISPOSE OF USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS**

**KD Keypad Detect**

 Common

**a** Point Numbers

**b** Terminal Numbers

**d** Modbus RS-232 (port 4) (Modbus variants only)

**e** Modbus RS-485 (port 4) (Modbus variants only)

**g** Ethernet 10/100 MB

**h** Fieldbus Terminator

 OFF (fieldbus not terminated at this controller)


 ON (fieldbus terminated at this controller)

**i** Fieldbus Port

**j** External Keypad Port (RJ-12)

**k** Service/Printer Port (port 1) (quick-connect RJ-45)

**l** Power 24 VAC


**IMPORTANT:** Earth this controller by connecting the common wire ( $G_0$  ) on the secondary side of the 24 VAC transformer to Earth at one point.

**m** External Keypad Port (screw terminal)




**n** Service/Printer Port (port 1) screw terminal

**o** Battery Enable Switch


 Battery Disabled


 Battery Enabled

**p** Ethernet Indicator LEDs

			
LED ON	Ethernet Message Received	Collision Detected	Ethernet is Connected
LED OFF	No Incoming Ethernet Messages	No Collision Detected	Ethernet is not Connected

**q** Fieldbus Terminator

 ON (fieldbus not terminated at this controller)

 OFF (fieldbus terminated at this controller)

**r** 7-segment LED Display (controller status)

**u** MS/TP Status


**v** Battery Status

**w** Power LED RED = ON

## FACTORY CONFIGURATION OPTIONS

	Maximum Number of Modbus Devices	Maximum Number of Modbus Points
CBR	0	0
CBR/MOD	48	1600
CBR/MODex	122	1600

**NOTE:** Devices with a fractional (1/4 or better) unit load will be required to reach the number of Modbus devices limit.

**Important:** The Battery Enable Switch  must be switched to the “Battery Enabled” position to ensure backup of configuration settings, and keeping the real-time clock operating when the device is powered down.

If the battery is disabled when the BACnet Router is powered up, the 7-segment display will display “b” alternating with “E” and the Orange Status LED will flash.

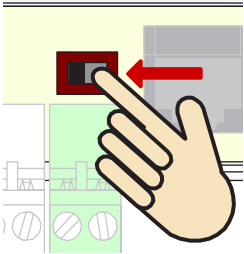
During operation, if the battery is disabled Orange Status LED will turn on.

If power is maintained when the Battery is disabled then the configuration data and the real time clock will be maintained.

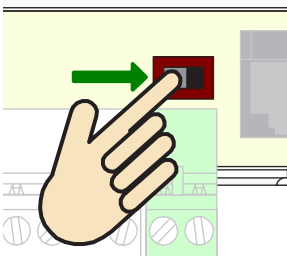
If the Battery is disabled when the BACnet Router is powered down, then the next time Power is applied the configuration and real time clock will be “wiped”. Note that the Network Setup (IP Address etc) will not be “wiped” after this procedure.

**To restore the default Network Setup, power up the CBR with the Battery enabled, then disable it for between 3 and 4 seconds as follows:**

1. Disable the Battery using the Battery Switch. (The orange Status LED will turn on)



2. Wait for 3 seconds, then ...
3. Within 1 second enable the battery. (The orange Status LED will turn off)



**After a short delay (less than 10 seconds) the device will restart with the default Network Setup (IP address = 192.168.1.1).**

# SPECIFICATIONS

## MECHANICAL

<b>Size (excluding terminal plugs)</b>	5.7 x 4.7 x 2.6" (144 x 118 x 65 mm)
<b>Enclosure &amp; Mounting</b>	Injection-molded ABS / DIN Rail

## ENVIRONMENT *Intended for field installation within another enclosure*

<b>Temperature &amp; Humidity</b>	32° - 122° F (0° - 50° C) 0 - 90 % Relative Humidity non-condensing
<b>EMC Immunity / Emission</b>	EN 50082-1 / EN 55011 Class B
<b>Protection Class</b>	IP20/DIN 40050

## WIRING *Use Copper or Copper clad Aluminum conductors only*

<b>Ethernet</b>	Screened or Unscreened CAT5e
<b>RS-485 Fieldbus</b>	2-core screened twisted pair (e.g. Belden 8132 up to 600m at max baud rate 76k, Belden 9841 up to 1200m at max baud rate 76k)

## ELECTRICAL

<b>Supply Requirements</b>	24 VAC +/- 20% 50/60 Hz
<b>Transformer Rating</b>	10 VA
<b>Power / Fuse Rating</b>	5 Watts maximum / 1A resettable

## PROCESSOR

<b>Type</b>	ARM9, 150 Mhz
<b>Memory</b>	16 MB RAM, 16 MB Flash
<b>Real-time Clock</b>	Battery backup for 6 months minimum

## INTERFACE

<b>Embedded Web Configuration Interface</b>	
<b>External Keypad</b>	UCKRA420 Serial Text Keypad connected via RJ-12 port (maximum cable length 50m)

## SOFTWARE FEATURES

<b>Keypad Configuration Mode</b>	Network Setup via External Keypad
<b>Embedded Web Configuration Interface</b>	Network Setup, BACnet/IP Configuration, BACnet MS/TP Configuration, BBMD Configuration, View Foreign Devices, Status Information, Modbus Points

### Maximum Controllers per Fieldbus

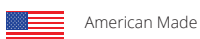
99\*

\* It is recommended for typical conditions that the no. of Main Plant controllers be limited to 16, or Unitary controllers limited to 32 on a CBR fieldbus. MSTP devices with a fractional (¼ or smaller) unit load will be required in order to extend a single fieldbus trunk beyond 32 devices. Both CBM and CBT controllers are ¼ unit load devices. Please refer to MAN0106 for recommendations on configuring a specific network for optimal comms speed.



**American Auto-Matrix**  
One Technology Lane  
Export, PA 15632  
(724) 733-2000

[aam@aamatrix.com](mailto:aam@aamatrix.com)  
[www.aamatrix.com](http://www.aamatrix.com)



Appropriate safety precautions must always be taken when operating or maintaining equipment connected to any American Auto-Matrix product or other Licensed Materials or Hardware. AAM assumes no responsibility or liability for any injuries or damage to any persons or property resulting from the use of these products. As always, these products should be used in the manner they are intended.

All trademarks, trade names, service marks, or logos contained herein are the property of their respective owners and are only used to describe the product(s) being listed in this document. Every effort has been made to properly capitalize, punctuate, and identify and attribute all required trademarks with the use of the appropriate ® or ™ wherever practical and possible. American Auto-Matrix is not affiliated or a licensee holder of any of the trademarks other than those detailed below.

American Auto-Matrix, Smart Building Solutions, Solution Integrator, the Rocket-A, AspectFT, Auto-Flow, AspectFT-Facility, AspectFT-Enterprise, AspectFT-Studio, AspectFT-Nexus, AspectFT-Matrix MAX, and vSTAT are either registered trademarks or trademarks of American Auto-Matrix.