AMERICAN AUTO-MATRIX®
A Cylon Energy Inc. Company

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.

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

Smart Building Solutions®
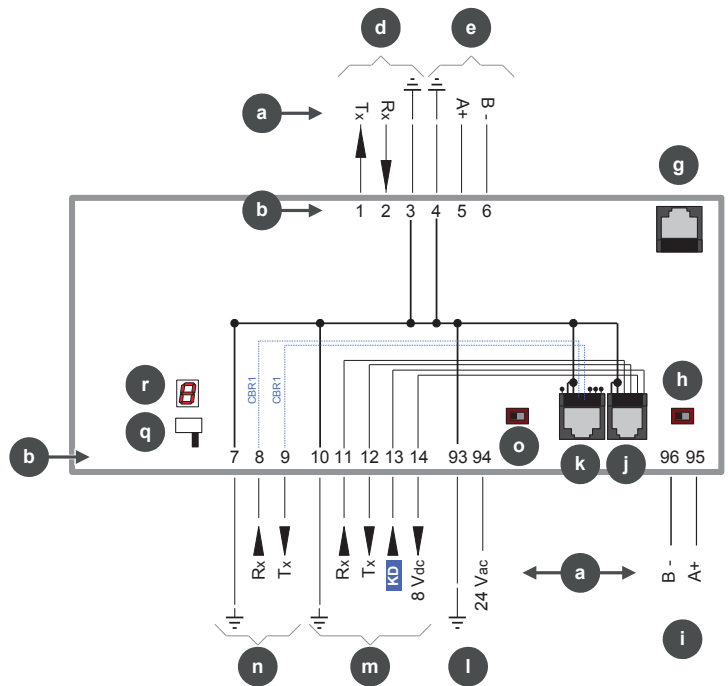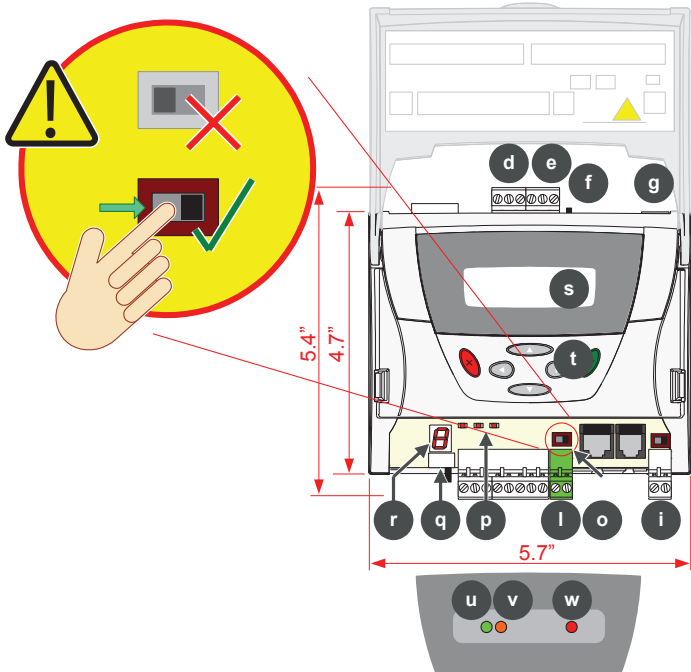
IMPORTANT: The Battery Enable Switch (located above the Power 24 V AC connection) must be switched to the "Battery Enabled" position to ensure backup of controller settings such as Time Schedules and Globals when the UC32.netK is powered down. Press the 'up' key ⊲▷ on the UC32.netK keypad to check the 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**

	Ethernet Message Received	Collision Detected	Ethernet is Connected
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)
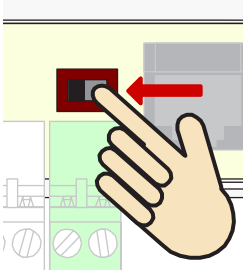
2. Wait for 3 seconds, then ...
3. Within 1 second enable the battery. (The orange Status LED will turn off)
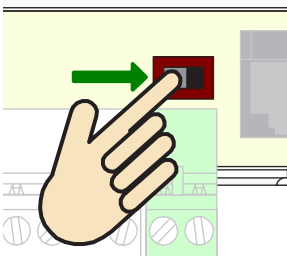
After a short delay (less than 10 seconds) the device will restart with the default Network Setup (IP address = 192.168.1.1).

MECHANICAL

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

ENVIRONMENT   *Intended for field installation within another enclosure*

Temperature & Humidity	32˚ - 122˚ F (0˚ - 50˚ C) 0 - 90 % Relative Humidity non-condensing
EMC Immunity / Emission	EN 50082-1 / EN 55011 Class B
Protection Class	IP20/DIN 40050
Approvals	UL Listed (CDN & US) UL916 Energy Management Equipment File Number E176435

WIRING   *Use Copper or Copper clad Aluminum conductors only*

Ethernet	Screened or Unscreened CAT5e
RS-485 Fieldbus	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

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

PROCESSOR

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

INTERFACE

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

SOFTWARE FEATURES

Keypad Configuration Mode	Network Setup via External Keypad
Embedded Web Configuration Interface	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.

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