



# MatrixBBC

## Protocol Implementation Conformance Statement (PICS)

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**Vendor Name:** American Auto-Matrix

**Product Name:** BACnet Building Controller

**Product Model Number:** x-BBC-y (x - indicating target model; y - feature)

**Firmware Revision:** Target using BBC module v1.1.56 or later

**BACnet Protocol Revision:** 9

### Product Description:

The MatrixBBC is a powerful and scalable building controller that offers seamless area and global control capabilities for BACnet-based installations. Compliant to BACnet's B-BC profile, the product services BACnet MS/TP, BACnet/IP, and BACnet/Ethernet (8802-3) networks and their associated device connections. Flexible in both software and hardware, the product supports the ability to attach STATbus IOX Modules for applications requiring central-point direct digital control.

### BACnet Standardized Device Profile:

- BACnet Operator Workstation (B-OWS)
- BACnet Building Controller (B-BC)
- BACnet Advanced Application Controller (B-AAC)
- BACnet Application Specific Controller (B-ASC)
- BACnet Smart Sensor (B-SS)
- BACnet Smart Actuator (B-SA)
- BACnet Other (B-OTHER)

### BACnet Interoperability Building Blocks Supported:

DS-RP-A	DS-WPM-B	AE-ESUM-B	T-ATR-B	DM-TS-B
DS-RP-B	DS-COV-A	AE-INFO-B	DM-DDB-A	DM-UTC-A
DS-WP-A	DS-COV-B	SCHED-I-B	DM-DDB-B	DM-UTC-B
DS-WP-B	AE-N-I-B	SCHED-E-B	DM-DOB-B	DM-RD-B
DS-RPM-A	AE-ACK-B	T-VMT-I-B	DM-DCC-B	DM-BR-B
DS-RPM-B	AE-ASUM-B	T-VMT-E-B	DM-TS-A	DM-OCD-B

### Segmentation Capability:

Able to transmit segmented messages  yes  no Window Size: 1

Able to receive segmented messages  yes  no Window Size: 1

### Standard Object Types Supported:

#### Dynamically Creatable & Deletable Objects:

Analog Input  
 Analog Value  
 Binary Output  
 Calendar  
 Program  
 Trend Log

Analog Output  
 Binary Input  
 Binary Value  
 Notification Class  
 Schedule

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Properties:

**Bold** indicates writable properties

*Italics* indicates optional properties

### Device:

<b>Object-identifier</b>	Object-list	<i>Utc-time-synchronization-recipients</i>
<b>Object-name</b>	Max-apdu-length	<i>Time-synchronization-interval</i>
Object-type	Segmentation-supported	<b>Align-intervals</b>
System-status	<b>Local-time</b>	<b>Interval-offset</b>
Vendor-name	<b>Local-date</b>	<b>Slave-proxy-enable</b>
Vendor-id	<b>Utc-offset</b>	<b>Manual-slave-address-binding</b>
Model-name	<b>Daylight-savings-status</b>	Slave-address-binding
Firmware-revision	<b>Apdu-timeout</b>	Last-restart-reason
Application-software-revision	<b>Number-of-apdu-retires</b>	Time-of-device-restart
Protocol-version	<b>Max-master</b>	<b>Restart-notification-recipient</b>
Protocol-revision	<b>Max-info-frames</b>	Database-revision
Protocol-services-supported	<b>Time-synchronization-recipients</b>	<i>Profile-name</i>
Protocol-object-types-supported	<b>Device-address-binding</b>	

### Analog Input:

Object-identifier	<i>Min-pres-value</i>	<b>Deadband</b>
<b>Object-name</b>	<b>Max-pres-value</b>	<b>Limit-enable</b>
Object-type	<i>Reliability</i>	<b>Event-enable</b>
Present-value	<i>Resolution</i>	<i>Acked-transitions</i>
Status-flags	<b>Time-delay</b>	<b>Notify-type</b>
Event-state	<b>Notification-class</b>	<i>Event-time-stamps</i>
<b>Out-of-service</b>	<b>High-limit</b>	<i>Profile-name</i>
<b>Units</b>	<b>Low-limit</b>	

### Analog Output:

Object-identifier	<i>Min-pres-value</i>	<b>Deadband</b>
<b>Object-name</b>	<b>Max-pres-value</b>	<b>Limit-enable</b>
Object-type	Priority-array	<b>Event-enable</b>
<b>Present-value</b>	<b>Relinquish-default</b>	<i>Acked-transitions</i>
Status-flags	<b>Time-delay</b>	<b>Notify-type</b>
Event-state	<b>Notification-class</b>	<i>Event-time-stamps</i>
<b>Out-of-service</b>	<b>High-limit</b>	<i>Profile-name</i>
<b>Units</b>	<b>Low-limit</b>	

### Analog Value:

Object-identifier	<b>Units</b>	<b>Limit-enable</b>
<b>Object-name</b>	<b>Priority-array</b>	<i>Acked-transitions</i>
Object-type	<b>Relinquish-default</b>	<b>Notify-type</b>
<b>Present-value</b>	<b>Notification-class</b>	<i>Event-time-stamps</i>
Status-flags	<b>High-limit</b>	<i>Profile-name</i>
Event-state	<b>Low-limit</b>	
<b>Out-of-service</b>	<b>Deadband</b>	

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### **Binary Input:**

Object-identifier  
**Object-name**  
 Object-type  
 Present-value  
 Status-flags  
 Event-state

**Out-of-service**  
*Reliability*  
**Polarity**  
**Time-delay**  
**Notification-class**  
**Alarm-value**

**Event-enable**  
*Acked-transitions*  
**Notify-type**  
*Event-time-stamps*  
*Profile-name*

### **Binary Output:**

Object-identifier  
**Object-name**  
 Object-type  
**Present-value**  
 Status-flags  
 Event-state  
*Reliability*

**Out-of-service**  
**Polarity**  
**Minimum-off-time**  
**Minimum-on-time**  
 Priority-array  
**Relinquish-default**  
**Time-delay**

**Notification-class**  
**Feedback-value**  
**Event-enable**  
*Acked-transitions*  
**Notify-type**  
*Event-time-stamps*  
*Profile-name*

### **Binary Value:**

Object-identifier  
**Object-name**  
 Object-type  
**Present-value**  
 Status-flags  
 Event-state  
**Out-of service**

**Time-delay**  
**Minimum-off-time**  
**Minimum-on-time**  
 Priority-array  
**Relinquish-default**  
**Notification-class**  
**Alarm-value**

**Event-enable**  
*Acked-transitions*  
**Notify-type**  
*Event-time-stamps*  
*Profile-name*

### **Calendar:**

Object-identifier  
**Object-name**

Object-type  
 Present-value

**Date-list**  
*Profile-name*

### **File:**

Object-identifier  
 Object-name  
 Object-type  
 File-type

File-size  
 Modification-date  
**Archive**  
**Read-only**

File-access-method  
*Profile-name*

### **Notification Class:**

Object-identifier  
**Object-name**  
 Object-type

Notification-class  
**Priority**  
**Ack-required**

**Recipient-list**  
*Profile-name*



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### **Program:**

Object-identifier	<b>Program-change</b>	Status-flags
Object-name	<i>Reason-for-halt</i>	Out-of-service
Object-type	<i>Description-of-halt</i>	<i>Profile-name</i>
Program-state	Program-location	

### **Schedule:**

Object-identifier	<b>Weekly-schedule</b>	Status-flags
<b>Object-name</b>	<b>Exception-schedule</b>	Reliability
Object-type	<b>Schedule-default</b>	Out-of-service
<b>Present-value</b>	<b>List-of-object-property-references</b>	<i>Profile-name</i>
<b>Effective-period</b>	<b>Priority-for-writing</b>	

### **Trend Log:**

Object-identifier	<b>Cov-resubscription-interval</b>	<b>Notification-class</b>
<b>Object-name</b>	<b>Stop-when-full</b>	<b>Event-enable</b>
Object-type	Log-buffer	Acked-transitions
<b>Description</b>	<b>Buffer-size</b>	<b>Notify-type</b>
<b>Log-device-object-property</b>	<b>Record-count</b>	<b>Logging-type</b>
Status-flags	<b>Notification-threshold</b>	Event-time-stamps
<b>Start-time</b>	Records-since-notification	<i>Profile-name</i>
<b>Stop-time</b>	Last-notify-record	
<b>Log-interval</b>	Event-state	

### Non-Standard Property Declaration:

This product contains non-standard properties in the following standard objects listed below.

#### **Analog Inputs**

Identifier	Meaning	Datatype
51526	Input Filter Display	Unsigned
53062	Input Offset	Real
53832	Run Hours	Unsigned
50497	Enable Alarming	Boolean
54100	Sensor Type	Unsigned
51017	GID	Unsigned
51491	Input Index	Unsigned

#### **Analog Outputs**

Identifier	Meaning	Datatype
52558	Min Scale	Real
58568	Max Scale	Real
53077	Actual Value	Real
54612	Update Time	Real
53832	Run Hours	Unsigned
50497	Enable Alarming	Boolean
51017	GID	Unsigned
51491	Output Index	Unsigned

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### Analog Values

Identifier	Meaning	Datatype
50497	Enable Alarming	Boolean

### Binary Inputs

Identifier	Meaning	Datatype
53832	Run Hours	Unsigned
50497	Enable Alarming	Boolean
54100	Sensor Type (BIs)	Unsigned
51017	GID	Unsigned
51491	Input Index	Unsigned
51526	Fit Delay (BI, 1001 and up)	Unsigned
52548	Pulse Count Mode	Unsigned
52816	Pulse Accumulated	Unsigned
54086	Pulse Multiplier	Real
54102	Scaled Pulse Count	Real

### Binary Outputs

Identifier	Meaning	Datatype
53077	Actual Output	Unsigned
53335	Pulse Width	Real
53832	Run Hours	Unsigned
50497	Enable Alarming	Boolean
51017	GID	Unsigned
51491	Output Index	Unsigned

### Binary Value

Identifier	Meaning	Datatype
50497	Enable Alarming	Boolean

### Notification Class

Identifier	Meaning	Datatype
49457	Rec 1 Active?	Boolean
49458	Rec 2 Active?	Boolean
49459	Rec 3 Active?	Boolean
49460	Rec 4 Active?	Boolean
49461	Rec 5 Active?	Boolean

### Schedule

Identifier	Meaning	Datatype
50005	Occ?	Boolean
50007	Unocc?	Boolean
49999	Warmup?	Boolean
50003	NightSB?	Boolean



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### Programs

Identifier	Meaning	Datatype
42033	\$1 Register	Unsigned
42052	\$D Register	Unsigned
42053	\$E Register	Unsigned
42071	\$W Register	Unsigned
42062	\$N Register	Unsigned
42305	Register A	NULL
42306	Register B	NULL
42307	Register C	NULL
42038	Register D	NULL
42039	Register E	NULL
42310	Register F	NULL
42311	Register G	NULL
42312	Register H	NULL
42313	Register I	NULL
42314	Register J	NULL
42315	Register K	NULL
42316	Register L	NULL
42317	Register M	NULL
42318	Register N	NULL
42319	Register O	NULL
42320	Register P	NULL

### Data Link Layer Options:

- BACnet IP, (Annex J)
- BACnet IP, (Annex J), Foreign Device
- ISO 8802-3, Ethernet (Clause 7)
- ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
- ANSI/ATA 878.1, RS-485 ARCNET (Clause 8), baud rate(s):
- MS/TP master (Clause 9), baud rate(s): 9.6k, 19.2k, 38.4k, 76.8k
- MS/TP slave (Clause 9), baud rate(s):
- Point-To-Point, EIA 232 (Clause 10), baud rate(s):
- Point-To-Point, modem, (Clause 10), baud rate(s):
- LonTalk, (Clause 11), medium:
- Other:

### Device Address Binding:

Is static device binding supported?  Yes  No

(This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)



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### Networking Options:

- Router, Clause 6 - IP, MS/TP, Ethernet
- Annex H, BACnet Tunneling 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"/> ISO 10646 (UCS-4) |
| <input type="checkbox"/> IBM™/Microsoft™ DBCS | <input type="checkbox"/> ISO 10646 (UCS-2) |
| <input type="checkbox"/> JIS C 6226           | <input type="checkbox"/> ISO 8859-1        |

### Gateway:

This product does not support gateway functionality for any types of non-BACnet equipment/network(s).