

# NATIVE SERIES UNITARY CONTROLLER PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT (PICS)

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## OVERVIEW

Protocol Implementation Conformance Statements (PICS) identify the specifics of a particular manufacturer's BACnet device. This PICS applies to American Auto-Matrix's (AAM) Native Series BACnet MS/TP Unitary Controllers.

### NOTE

The following Unitary Controllers comprise AAM's Native Series:

*NB-ASC*  
*NB-ASC(e)*  
*NB-VAVr*  
*NB-VAVra*  
*NB-VAVrf*  
*NB-VAVta*  
*NB-VAVtf*  
*NB-V3Tb*  
*NB-V3Td*

## 1. PRODUCT DESCRIPTION

The Native Series controllers are Variable and Constant Air Volume (VAV/CAV) terminal box, Variable Volume/Variable Temperature (V3T), and Application Specific (ASC) digital controllers and are used in a wide range of HVAC applications and control strategies.

## 2. BACNET CONFORMANCE CLASS SUPPORTED

Class 1 <input type="checkbox"/>	Class 4 <input type="checkbox"/>
Class 2 <input checked="" type="checkbox"/>	Class 5 <input type="checkbox"/>
Class 3 <input type="checkbox"/>	Class 6 <input type="checkbox"/>

## 3. BACNET FUNCTIONAL GROUPS SUPPORTED

Clock	<input checked="" type="checkbox"/>	Files	<input type="checkbox"/>
HHWS	<input type="checkbox"/>	Reinitialize	<input checked="" type="checkbox"/>
PCWS	<input type="checkbox"/>	Virtual Operator Interface	<input type="checkbox"/>
Event Initiation	<input type="checkbox"/>	Virtual Terminal	<input type="checkbox"/>
Event Response	<input type="checkbox"/>	Device Communications	<input checked="" type="checkbox"/>
COV Event Initiation	<input type="checkbox"/>	Time Master	<input type="checkbox"/>
COV Event Response	<input type="checkbox"/>		

#### 4. BACNET STANDARD APPLICATION SERVICES SUPPORTED

Application Service	Initiates Requests	Executes Requests
Acknowledge Alarm	<input type="checkbox"/>	<input type="checkbox"/>
Confirmed COV Notification	<input type="checkbox"/>	<input type="checkbox"/>
Confirmed Event Notification	<input type="checkbox"/>	<input type="checkbox"/>
Get Alarm Summary	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Get Enrollment Summary	<input type="checkbox"/>	<input type="checkbox"/>
Subscribe COV	<input type="checkbox"/>	<input type="checkbox"/>
Unconfirmed COV Notification	<input type="checkbox"/>	<input type="checkbox"/>
Unconfirmed Event Notification	<input type="checkbox"/>	<input type="checkbox"/>
Atomic Read File	<input type="checkbox"/>	<input type="checkbox"/>
Atomic Write File	<input type="checkbox"/>	<input type="checkbox"/>
Add List Element	<input type="checkbox"/>	<input type="checkbox"/>
Remove List Element	<input type="checkbox"/>	<input type="checkbox"/>
Create Object	<input type="checkbox"/>	<input type="checkbox"/>
Delete Object	<input type="checkbox"/>	<input type="checkbox"/>
Read Property	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Read Property Conditional	<input type="checkbox"/>	<input type="checkbox"/>
Read Property Multiple	<input type="checkbox"/>	<input type="checkbox"/>
Write Property	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Read Range	<input type="checkbox"/>	<input type="checkbox"/>
Write Property Multiple	<input type="checkbox"/>	<input type="checkbox"/>
Device Communication Control	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Confirmed Private Transfer	<input type="checkbox"/>	<input type="checkbox"/>
Unconfirmed Private Transfer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Reinitialize Device	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Confirmed Text Message	<input type="checkbox"/>	<input type="checkbox"/>
Unconfirmed Text Message	<input type="checkbox"/>	<input type="checkbox"/>
Time Synchronization	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Who-Has	<input type="checkbox"/>	<input checked="" type="checkbox"/>
I-Have	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Who-Is	<input type="checkbox"/>	<input checked="" type="checkbox"/>
I-AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>
VT-Open	<input type="checkbox"/>	<input type="checkbox"/>
VT-Close	<input type="checkbox"/>	<input type="checkbox"/>
VT-Data	<input type="checkbox"/>	<input type="checkbox"/>
Authenticate	<input type="checkbox"/>	<input type="checkbox"/>
Request Key	<input type="checkbox"/>	<input type="checkbox"/>

## 5. STANDARD OBJECT-TYPES SUPPORTED

Object-Type	Supported	Dynamically Creatable	Dynamically Deletable	Optional Properties Supported	Writeable Properties
Analog Input	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Analog Output	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Analog Value	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Binary Input	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Binary Output	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Binary Value	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Calendar	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>
Command	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Device	YES	N/A	N/A		<input checked="" type="checkbox"/>
Event Enrollment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
File	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Loop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Multi-state Input	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Multi-state Output	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Notification Class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Schedule	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

## 6. DATA LINK LAYER OPTION

<input type="checkbox"/> ISO 8802-3 10BASE5	<input type="checkbox"/> ARCNET, coax star	<input checked="" type="checkbox"/> MS/TP master, 38.4k, 19.2k, 9600, 57,600
<input type="checkbox"/> ISO 8802-3 10BASE2	<input type="checkbox"/> ARCNET, coax bus	<input checked="" type="checkbox"/> MS/TP slave, baud rate
<input type="checkbox"/> ISO 8802-3 10BASET	<input type="checkbox"/> ARCNET, twisted pair star	<input type="checkbox"/> Point-to-Point, EIA 232, baud rate
<input type="checkbox"/> ISO 8802-3 Fiber	<input type="checkbox"/> ARCNET, twisted pair bus	<input type="checkbox"/> Point-to-Point, modem, baud rate
<input type="checkbox"/> other - BACnet/IP as defined in Annex J	<input type="checkbox"/> ARCNET, fiber star	<input type="checkbox"/> LonTalk

## 7. 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/Microsoft DBCS	<input type="checkbox"/> JIS C 6226
<input type="checkbox"/> ISO 10646 (ICS-4)	<input type="checkbox"/> ISO 10646 (UCS2)	<input type="checkbox"/> ISO 8859-1

## 8. SPECIAL FUNCTIONALITY

Segmented Requests Supported       yes       no      Window Size:  
 Segmented Responses Supported       yes       no      Window Size: 1

## 9. ROUTER

No routing capability

## 10. BACNET INTEROPERABILITY BUILDING BLOCKS (BIBBs)

The Native Series Unitary Controllers follow the BACnet Application Specific Controller (B-ASC) profile. A B-ASC is a simple control device with limited resources, intended for specific applications. The capabilities of the Native Series Unitary Controllers are described in sections 10.A through 10.O as follows.

### 10.A DATA SHARING

- ▼ Ability to provide values for any of its BACnet objects upon request.
- ▼ Ability to allow modification of some or all of its BACnet objects by another device.

### 10.B SCHEDULING

- ▼ Local Schedule that controls operating mode (occupied/unoccupied/setback/warm-up) of controller.
- ▼ Local Calendar with ten holiday date list.

### 10.C DEVICE AND NETWORK MANAGEMENT

- ▼ Ability to respond to information about its status. (Who-Is/I-Am)
- ▼ Ability to respond to information about its objects. (Who-Has/I-Have)
- ▼ Ability to stop initiating and responding to APDUs. (Communication Control)
- ▼ Ability to reset device remotely. (ReinitializeDevice)
- ▼ Ability to receive Time Sync messages (TimeSync)
- ▼ Ability to send Time Sync messages. Requires Real Time Clock. (TimeSync)

### 10.D DATA SHARING-READPROPERTY-B (DS-RP-B)

The B device is a provider of data to device A.

BACnet Service	Initiate	Execute
ReadProperty		x

### 10.E DATA SHARING-WRITEPROPERTY-B (DS-WP-B)

The B device allows a value to be changed by device A.

BACnet Service	Initiate	Execute
WriteProperty		x

### 10.F ALARM AND EVENT-ALARM SUMMARY-B (AE-ASUM-B)

Device B provides summaries of alarms to device A.

BACnet Service	Initiate	Execute
GetAlarmSummary		x

### 10.G SCHEDULING-INTERNAL-B (SCHED-I-B)

The B device provides date and time scheduling of the values of specific properties of specific objects within the device. In addition to supporting the DS-RP-B and DS-WP-B BIBBs, each device claiming conformance to SCHED-I-B shall also possess at least one Calendar and one Schedule object. Devices claiming conformance to SCHED-I-B shall also support either DM-TS-B or DM-UTC-B.

### 10.H DEVICE MANAGEMENT-TIME SYNCHRONIZATION-A (DM-TS-A)

The A device provides time synchronization to B devices. The time parameter contained in the service request contains the date and time as determined by the clock in the device issuing the service request. Normally this will be "local time," i.e., the time in the local time zone corrected for daylight savings time as appropriate.

BACnet Service	Initiate	Execute
TimeSynchronization	x	

Devices claiming conformance to DM-TS-A must support the Time\_Synchronization\_Recipients property of the Device object.

### 10.I DEVICE MANAGEMENT BIBB-DYNAMIC DEVICE BINDING-B (DM-DDB-B)

The B device provides information about its device attributes and responds to requests to identify itself.

BACnet Service	Initiate	Execute
Who-Is		x
I-Am	x	

### 10.J DEVICE MANAGEMENT-DYNAMIC OBJECT BINDING-B (DM-DOB-B)

The B device provides address information about its objects upon requests.

BACnet Service	Initiate	Execute
Who-Has		x
I-Have	x	

### 10.K DEVICE MANAGEMENT-DEVICECOMMUNICATIONCONTROL-B (DM-DCC-B)

The B device responds to communication control exercised by the A device.

BACnet Service	Initiate	Execute
DeviceCommunicationControl		x

### 10.L DEVICE MANAGEMENT-TIMESYNCHRONIZATION-B (DM-TS-B)

The B device interprets time synchronization messages from the A device.

BACnet Service	Initiate	Execute
TimeSynchronization		x

Devices claiming conformance to DM-TS-B must support the Local\_Time and Local\_Date properties of the Device object.

**10.M DEVICE MANAGEMENT-REINITIALIZEDEVICE-B (DM-RD-B)**

The B device performs reinitialization requests from the A device. The optional password field shall be supported.

BACnet Service	Initiate	Execute
ReinitializeDevice		x

**10.N DEVICE MANAGEMENT-PRIVATE TRANSFER-A (DM-PT-A)**

The A device initiates the transmission of non-BACnet data within a BACnet service request.

BACnet Service	Initiate	Execute
UnconfirmedPrivateTransfer	x	

**10.O DEVICE MANAGEMENT-PRIVATE TRANSFER-B (DM-PT-B)**

The B device processes the non-BACnet data contained in the BACnet service request.

BACnet Service	Initiate	Execute
UnconfirmedPrivateTransfer		x

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