

# EC-Net<sup>AX</sup> 3.6 BACnet PICS

## BACnet Protocol Implementation Conformance Statement

**Date:** June 14, 2012

**Vendor Name:** Distech Controls Inc.

**Product Name:** EC-BOS<sup>AX</sup> Series

**Product Model Number:** EC-BOS-2<sup>AX</sup>, EC-BOS-6<sup>AX</sup>, EC-BOS-7<sup>AX</sup>, EC-BOS-2<sup>AX</sup> Security, EC-BOS-6<sup>AX</sup> Security, EC-BOS-403<sup>AX</sup>, EC-BOS-545<sup>AX</sup>, Soft EC-BOS<sup>AX</sup> (IP or Ethernet only)

**Application Software Version:** 3.6.47 or higher

**Firmware Revision:** 3.6.47 or higher

**BACnet Protocol Revision:** 7

**Product Description:**

EC-Net<sup>AX</sup> provides the ability to view, monitor, and control BACnet devices over IP, raw Ethernet, or MS/TP media. Devices, points, schedules, alarms, and logs can be learned and managed from EC-Net<sup>AX</sup>. In addition, EC-Net<sup>AX</sup> points, schedules, histories, and alarming can be exposed to BACnet for monitor and control by foreign BACnet clients.

**BACnet Standardized Device Profile (Annex L):**

- BACnet Advanced Operator Workstation (B-AWS)
- BACnet Operator Workstation (B-OWS)
- BACnet Operator Display (B-OD)
- 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)

**Additional BACnet Interoperability Building Blocks Supported (Annex K):**

Data Sharing	Device & Network Management
DS-RP-A, B	DM-DDB-A, B
DS-RPM-A, B	DM-DOB-A, B
DS-WP-A, B	DM-DCC-B
DS-WPM-A, B	DM-RD-B
DS-COV-A, B	DM-TS-B
DS-COVU-A, B	DM-UTC-B
DS-V-A	DM-LM-A, B
DS-M-A	DM-BR-B
DS-COVP-B	DM-ANM-A
	DM-ADM-A
	DM-ATS-A
	DM-MTS-A

<b>Alarm &amp; Event Management</b> AE-N-A, -I-B AE-ACK-A, B AE-ASUM-B AE-ESUM-B AE-INFO-B AE-VN-A AE-VM-A	<b>Trending</b> T-VMT-I-B, -E-B T-ATR-A, B T-V-A
<b>Scheduling</b> SCHED-I-B, -E-B SCHED-VM-A	<b>Network Management</b> NM-CE-A

### Segmentation Capability:

Feature	Supported	Window size
Transmit Segmented Messages	yes	10
Receive Segmented Messages	yes	any

### Standard Object Types Supported:

- The CreateObject and DeleteObject services are not supported, so no objects are dynamically creatable or deletable through BACnet service requests, although these objects are dynamically creatable and deletable through EC-Net<sup>AX</sup>.
- No general range restrictions exist; however, certain specific applications may have specific range restrictions.
- All potentially available properties are listed for each object type.
- Optional properties are listed in *italics*. Not all instances support all optional properties.
- Writable properties are listed in **bold**. Any range limitations are expressed in parentheses following the property name.

### Notes from Table

1. The File\_Size property of File objects is only writable if the underlying system file is changeable.
2. The Setpoint property of Loop objects is writable only if the setpoint is not linked from within EC-Net<sup>AX</sup>.
3. The Recipient\_List property of the Notification Class object will maintain entries that are internally configured within EC-Net<sup>AX</sup>.
4. The List\_Of\_Object\_Property\_References property of the Schedule object will maintain entries that are internally configured within EC-Net<sup>AX</sup>.
5. The Priority\_For\_Writing property of Schedule objects is not important for internal EC-Net<sup>AX</sup> operation, as the priority at which a point is commanded is determined by the input to which the Schedule output is linked.
6. These Trend Log object properties are not writable if the backing history for the exported Trend Log is a EC-Net<sup>AX</sup>-generated history. If the history is created as a BACnet Trend Log, then they are writable.

Object Type	Properties
Analog Input	<p>Object_Identifier  <b>Object_Name</b>  Object_Type  Present_Value  <b>Description</b>  Device_Type  Status_Flags  Event_State  Reliability  <b>Out_Of_Service</b>  Units  Min_Pres_Value  Max_Pres_Value</p> <p>Resolution  <b>COV_Increment</b>  <b>Time_Delay</b>  <b>Notification_Class</b>  <b>High_Limit</b>  <b>Low_Limit</b>  <b>Deadband</b>  <b>Limit_Enable</b>  Event_Enable  Acked_Transitions  <b>Notify_Type</b>  Event_Time_Stamps</p>
Analog Output	<p>Object_Identifier  <b>Object_Name</b>  Object_Type  Present_Value  <b>Description</b>  Device_Type  Status_Flags  Event_State  Reliability  <b>Out_Of_Service</b>  Units  Min_Pres_Value  Max_Pres_Value  Resolution</p> <p>Priority_Array  Relinquish_Default  <b>COV_Increment</b>  <b>Time_Delay</b>  <b>Notification_Class</b>  <b>High_Limit</b>  <b>Low_Limit</b>  <b>Deadband</b>  <b>Limit_Enable</b>  Event_Enable  Acked_Transitions  <b>Notify_Type</b>  Event_Time_Stamps</p>
Analog Value	<p>Object_Identifier  <b>Object_Name</b>  Object_Type  Present_Value  <b>Description</b>  Status_Flags  Event_State  Reliability  <b>Out_Of_Service</b>  Units  Priority_Array  <b>Relinquish_Default</b></p> <p><b>COV_Increment</b>  <b>Time_Delay</b>  <b>Notification_Class</b>  <b>High_Limit</b>  <b>Low_Limit</b>  <b>Deadband</b>  <b>Limit_Enable</b>  Event_Enable  Acked_Transitions  <b>Notify_Type</b>  Event_Time_Stamps</p>

Object Type	Properties
Binary Input	<p>Object_Identifier  <b>Object_Name</b>  Object_Type  Present_Value  <b>Description</b>  Device_Type  Status_Flags  Event_State  Reliability  <b>Out_Of_Service</b>  Polarity  <b>Inactive_Text</b>  <b>Active_Text</b></p> <p>Change_Of_State_Time  <b>Change_Of_State_Count</b> (0)  Time_Of_State_Count_Reset  <b>Elapsed_Active_Time</b> (0)  Time_Of_Active_Time_Reset  <b>Time_Delay</b>  <b>Notification_Class</b>  <b>Alarm_Value</b>  Event_Enable  Acked_Transitions  <b>Notify_Type</b>  Event_Time_Stamps</p>
Binary Output	<p>Object_Identifier  <b>Object_Name</b>  Object_Type  Present_Value  <b>Description</b>  Device_Type  Status_Flags  Event_State  Reliability  <b>Out_Of_Service</b>  Polarity  <b>Inactive_Text</b>  <b>Active_Text</b></p> <p>Change_Of_State_Time  <b>Change_Of_State_Count</b> (0)</p> <p>Time_Of_State_Count_Reset  <b>Elapsed_Active_Time</b> (0)  Time_Of_Active_Time_Reset  <b>Minimum_Off_Time</b>  <b>Minimum_On_Time</b>  Priority_Array  <b>Relinquish_Default</b>  <b>Time_Delay</b>  <b>Notification_Class</b>  Feedback_Value  Event_Enable  Acked_Transitions  <b>Notify_Type</b>  Event_Time_Stamps</p>
Binary Value	<p>Object_Identifier  <b>Object_Name</b>  Object_Type  Present_Value  <b>Description</b>  Status_Flags  Event_State  Reliability  <b>Out_Of_Service</b>  <b>Inactive_Text</b>  <b>Active_Text</b></p> <p>Change_Of_State_Time  <b>Change_Of_State_Count</b> (0)  Time_Of_State_Count_Reset</p> <p><b>Elapsed_Active_Time</b> (0)  Time_Of_Active_Time_Reset  <b>Minimum_Off_Time</b>  <b>Minimum_On_Time</b>  Priority_Array  <b>Relinquish_Default</b>  <b>Time_Delay</b>  <b>Notification_Class</b>  <b>Alarm_Value</b>  Event_Enable  Acked_Transitions  <b>Notify_Type</b>  Event_Time_Stamps</p>
Calendar	<p>Object_Identifier  <b>Object_Name</b>  Object_Type</p> <p><b>Description</b>  Present_Value  <b>Date_List</b></p>

Object Type	Properties	
Device	Object_Identifier Object_Name Object_Type System_Status Vendor_Name Vendor_Identifier Model_Name Firmware_Revision Application_Software_Revision <b>Location</b> <b>Description</b> Protocol_Version Protocol_Revision Protocol_Services_Supported Protocol_Object_Types_Support ed Object_List Max_APDU_Length_Accepted Segmentation_Supported Max_Segments_Accepted Local_Time Local_Date UTC_Offset	Daylight_Savings_Status APDU_Segment_Timeout APDU_Timeout Number_Of_APDU_Retries <b>Time_Synchronization_Recipients</b> Max_Master Max_Info_Frames Device_Address_Binding Database_Revision Configuration_Files Last_Restore_Time <b>Backup_Failure_Timeout</b> Active_COV_Subscriptions <b>UTC_Time_Synchronization_Recipients</b> <b>Time_Synchronization_Interval</b> <b>Align_Intervals</b> <b>Interval_Offset</b> proprietary-1338 proprietary-1339 proprietary-1340 proprietary-1341
File (Stream Access Only)	Object_Identifier <b>Object_Name</b> Object_Type <b>Description</b> File_Type	<b>File_Size</b> <sup>1</sup> Modification_Date <b>Archive</b> Read_Only File_Access_Method

Object Type	Properties	
Loop	Object_Identifier <b>Object_Name</b> Object_Type Present_Value <b>Description</b> Status_Flags Event_State <i>Reliability</i> <b>Out_Of_Service</b> Output_Units Manipulated_Variable_Reference Controlled_Variable_Reference Controlled_Variable_Value Controlled_Variable_Units Setpoint_Reference <b>Setpoint<sup>2</sup></b> Action <b>Proportional_Constant</b>	<i>Proportional_Constant_Units</i> <b>Integral_Constant</b> <i>Integral_Constant_Units</i> <b>Derivative_Constant</b> <i>Derivative_Constant_Units</i> <b>Bias</b> <b>Maximum_Output</b> <b>Minimum_Output</b> Priority_For_Writing <b>COV_Increment</b> <b>Time_Delay</b> <i>Notification_Class</i> <b>Error_Limit</b> <b>Deadband</b> <i>Event_Enable</i> <i>Acked_Transitions</i> <i>Notify_Type</i> <i>Event_Time_Stamps</i>
Multi-state Input	Object_Identifier <b>Object_Name</b> Object_Type Present_Value <b>Description</b> <i>Device_Type</i> Status_Flags Event_State <i>Reliability</i> <b>Out_Of_Service</b>	Number_Of_States <b>State_Text</b> <b>Time_Delay</b> <b>Notification_Class</b> <b>Alarm_Values</b> <i>Fault_Values</i> <i>Event_Enable</i> <i>Acked_Transitions</i> <b>Notify_Type</b> <i>Event_Time_Stamps</i>
Multi-state Output	Object_Identifier <b>Object_Name</b> Object_Type <b>Present_Value</b> <b>Description</b> <i>Device_Type</i> Status_Flags Event_State <i>Reliability</i> <b>Out_Of_Service</b> Number_Of_States	<b>State_Text</b> Priority_Array <b>Relinquish_Default</b> <b>Time_Delay</b> <b>Notification_Class</b> <i>Feedback_Value</i> <i>Event_Enable</i> <i>Acked_Transitions</i> <b>Notify_Type</b> <i>Event_Time_Stamps</i>

Object Type	Properties	
Multi-state Value	Object_Identifier <b>Object_Name</b> Object_Type <b>Present_Value</b> <b>Description</b> Status_Flags Event_State <i>Reliability</i> <b>Out_Of_Service</b> Number_Of_States	<b>State_Text</b> <i>Priority_Array</i> <b>Relinquish_Default</b> <b>Time_Delay</b> <b>Notification_Class</b> <b>Alarm_Values</b> <i>Fault_Values</i> <i>Event_Enable</i> <i>Acked_Transitions</i> <b>Notify_Type</b> <i>Event_Time_Stamps</i>
Notification Class	Object_Identifier <b>Object_Name</b> Object_Type <b>Description</b>	Notification_Class <b>Priority</b> <b>Ack_Required</b> <b>Recipient_List</b> <sup>3</sup>
Schedule	Object_Identifier <b>Object_Name</b> Object_Type Present_Value <b>Description</b> <b>Effective_Period</b> <i>Weekly_Schedule</i>	<b>Exception_Schedule</b> <b>Schedule_Default</b> <b>List_Of_Object_Property_References</b> <sub>4</sub> <b>Priority_For_Writing</b> <sup>5</sup> <i>Status_Flags</i> <i>Reliability</i> <b>Out_Of_Service</b>
Trend Log	Object_Identifier <b>Object_Name</b> Object_Type <b>Description</b> <b>Log_Enable</b> <sup>6</sup> <b>Start_Time</b> <b>Stop_Time</b> <i>Log_DeviceObjectProperty</i> <i>Log_Interval</i> <sup>6</sup> Stop_When_Full Buffer_Size Log_Buffer <b>Record_Count (0)</b> <sup>6</sup>	Total_Record_Count <i>Notification_Threshold</i> <i>Records_Since_Notification</i> <i>Last_Notify_Record</i> Event_State <b>Notification_Class</b> <i>Event_Enable</i> <i>Acked_Transitions</i> <b>Notify_Type</b> <i>Event_Time_Stamps</i> Logging_Type Status_Flags
Structured View	Object_Identifier <b>Object_Name</b> Object_Type <b>Description</b>	Node_Type <i>Node_Subtype</i> Subordinate_List <i>Subordinate_Annotations</i>

**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): 9600, 19200, 38400, 76800
- 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? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)  Yes  No

**Networking Options:**

- Router, Clause 6 – Routing configurations: Ethernet-IP, Ethernet-MS/TP, IP-MS/TP
- 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.

- ANSI X3.4  IBM™/Microsoft™ DBCS  ISO 8859-1
- ISO 10646 (UCS-2)  ISO 10646 (UCS-4)  JIS C 6226



**If this product is a communication gateway, describe the types of non-BACnet equipment/networks(s) that the gateway supports:**

This product supports communications between BACnet and any third-party system to which EC-Net<sup>AX</sup> can connect. Contact Distech Controls for a list of supported protocols.

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