BACnet Protocol Implementation Conformance Statement

Date: 4-Oct-2019
Vendor Name: Control Solutions, Inc.
Product Name: ValuPoint Programmable I/O
Product Model Number: VP4-2370
Applications Software Version: 4.40.1 **Firmware Revision:** 4.40 **BACnet Protocol Revision:** 15

Product Description:
BACnet Application Specific Controller (B-ASC), user programmable with 23 I/O points.

BACnet Standardized Device Profile (Annex L):

☐ **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)**

List all BACnet Interoperability Building Blocks Supported (Annex K):
DS-RP-A, DS-RP-B, DS-RPM-B, DS-WP-A, DS-WP-B, DS-WPM-B,
DS-COV-B, DS-COVP-B, DM-DBB-A, DM-DDB-B, DM-DOB-B, DM-DCC-B, DM-RD-B, DM-R-B

Segmentation Capability:

☑ Segmented requests supported   Window Size: 16
☑ Segmented responses supported   Window Size: 16

Standard Object Types Supported:

An object type is supported if it may be present in the device. For each standard Object Type supported provide the following data:
    1) Whether objects of this type are dynamically creatable using the CreateObject service
    2) Whether objects of this type are dynamically deletable using the DeleteObject service
    3) List of the optional properties supported
    4) List of all properties that are writable where not otherwise required by this standard
    5) List of proprietary properties and for each its property identifier, datatype, and meaning
    6) List of any property range restrictions

Object types: AI, AO, AV, BI, BO, BV, MSI, MSO, MSV, DEV (all static)

Property (all but DEV)	Encoding
Object_Identifier (75)	BACnetObjectIdentifier
Object_Name (77) (W)	CharacterString "Analog Input *n*"
Object_Type (79)	BACnetObjectType ENUMERATED: analog-input (0) analog-output (1) analog-value (2) binary-input (3)

	binary-output (4) binary-value (5) device (8) multi-state-input (13) multi-state-output (14) multi-state-value (19)
Present_Value (85) (W)	REAL (analog objects) ENUMERATED (binary objects) Unsigned (multi-state objets) (no index) (priority required when writing commandable objects) (input objects writeable only when out of service)
Status_Flags (111)	BACnetStatusFlags BIT STRING: fault(1), out-of-service(3)
Event_State (36)	BACnetEventState ENUMERATED: normal(0), fault(1)
Reliability (103)	BACnetReliability ENUMERATED: normal(0) *Vendor specific:* no response (64) crc error (65) exception, illegal function code (66) exception, illegal data address (67) exception, illegal data value (68) exception, code+65, rarely used (69..79) configuration property fault (80) exception, code not recognized (81) BACnet client read/write timeout (82) BACnet client received error response from slave (83)
Out_Of_Service (81) (W)	BOOLEAN
COV_Increment (22) (W)	REAL (analog objects only)
Priority_Array (87)	BACnetPriorityArray (commandable objects only) SEQUENCE SIZE (16) OF BACnetPriorityValue REAL (each element, analog output objects) ENUMERATED (each element, binary output objects) Unsigned (each element, multi-state output objects)
Relinquish_Default (104) (W)	REAL (analog objects) ENUMERATED (binary objects) Unsigned (multi-state objets)
Polarity (84)	BACnetPolarity (binary objects only) ENUMERATED: normal(0)
Number_Of_States (74)	Unsigned (multi-state objects only)
Units (117)	BACnetEngineeringUnits (analog objects only)
Vendor Specific Object Properties:	
Object_Map_Usage (801) (W)	BIT STRING:

	(0) object is mapped to BACnet object on another device
	(1) object is mapped to local physical I/O
	(2) set default on power-up
	(3) set default on comm. fail
	(4) read periodic
	(5) write periodic
	(6) write on delta
	(7) enable max quiet
	(8) object value is persistent
	(9) object is reserved for global use
Poll_Period (802) (W)	Unsigned Modbus poll/update time in seconds
Slope (809) (W)	REAL BACnet = Modbus * slope + intercept Modbus = (BACnet – intercept) / slope
Intercept (810) (W)	REAL
Default_Value (811) (W)	REAL (analog objects) ENUMERATED (binary objects) Unsigned (multi-state objects)
Max_Quiet_Time (812) (W)	Unsigned
BACnet_Slave_Timeout (813) (W)	Unsigned
Max_Read_Fail_Count (814) (W)	Unsigned
Send_On_Delta (815) (W)	REAL (analog objects only)
Initial_COV_Increment (816) (W)	REAL (analog objects only)
Initial_Relinquish_Default (818) (W)	REAL (analog objects) ENUMERATED (binary objects) Unsigned (multi-state objects)
BACnet_Slave_Device (819) (W)	Unsigned
Slave_Object_Type (820) (W)	ENUMERATED
Slave_Object_Instance (821) (W)	Unsigned
Slave_Index (822) (W)	Unsigned (value is index+1, 0=no index)
Slave_Priority (823) (W)	ENUMERATED (1..16)
Slave _Property_Type (824) (W)	ENUMERATED (see BACnet protocol specification for type codes)
Slave_Data_Encoding (825) (W)	ENUMERATED (0) Null, (1) Boolean, (2) Unsigned integer, (3) Signed Integer, (4) Real (floating point),

	(8) Bit string, (9) Enumerated
Slave _Bit_Position (826) (W)	ENUMERATED
Slave_Address (827) (W)	ENUMERATED (MAC address if BACnet slave does not support dynamic binding)
Error_Class (830)	Unsigned
Error_Code (831)	Unsigned
Config_Write_Command (832) (W)	ENUMERATED (1) write config to EEPROM
Hardware_Configuration (841) (W)	ENUMERATED
Hardware_Qualifier_1 (842) (W)	ENUMERATED
Hardware_Qualifier_2 (843) (W)	ENUMERATED
Feedback (848)	Unsigned
Raw_Data (849)	Unsigned

Property (DEV)	Encoding
Object_Identifier (75) (W)	BACnetObjectIdentifier
Object_Name (77) (W)	CharacterString
Object_Type (79)	BACnetObjectType ENUMERATED: device (8)
System_Status (112)	BACnetDeviceStatus
Vendor_Name (121)	CharacterString
Vendor_Identifier (120)	Unsigned16 (should always return 208)
Model_Name (70)	CharacterString
Fimrware_Revision (44)	CharacterString
Application_Software_Version (12)	CharacterString
Protocol_Version (98)	Unsigned
Protocol_Revision (139)	Unsigned
Protocol_Services_Supported (97)	BACnetServicesSupported
Protocol_Object_Types_Supported (96)	BACnetObjectTypesSupported
Object_List (76)	BACnetARRAY[N] of BACnetObjectIdentifier

Max_APDU_Length_Accepted (62)	Unsigned
Segmentation_Supported (107)	BACnetSegmentation
APDU_Timeout (11) (W)	Unsigned
Number_Of_APDU_Retries (73) (W)	Unsigned
Device_Address_Binding (30)	List of BACnetAddressBinding
Database_Revision (155)	Unsigned
Location (58) (W)	CharacterString
Max_Segments_Accepted (167)	Unsigned
APDU_Segment_Timeout (10) (W)	Unsigned
Active_COV_Subscriptions (152)	List of BACnetCOVSubscription
Last_Restart_Reason (196)	BACnetRestartReason
Local_Time (57) (W)	Time
Local_Date (56) (W)	Date
UTC_Offset (119) (W)	INTEGER
Daylight_Savings_Status (24) (W)	BOOLEAN
Restart_Notification_Recipients (202)	List of BACnetRecipient
Time_Of_Device_Restart (203)	BACnetTimeStamp
Vendor Specific Object Properties:	
Physical I/O Assignment (881) (W)	BACnetObjectIdentifier Index: 1..MAX_HARDWARE_POINT
Enable_Auto_Reset (1203) (W)	BOOLEAN (True if reliability codes should auto return to zero)
Reinit_Password (1205) (WO)	CharacterString Note: This property is write-only, and is only writeable with unlock sequence.
Password_Unlock (1206) (W)	Unsigned Note: Must write device's own device instance to this property to unlock password for writing, and next property written must be 1205. Any other sequence will reset and lock out password write.
Device_Allocation (1251) (W)	Unsigned Index: Use object type analog-input (0) analog-output (1) analog-value (2) binary-input (3)

	binary-output (4) binary-value (5) multi-state-input (13) multi-state-output (14) multi-state-value (19) (value is count allocated of objects of type indexed) (attempting to write a count that is not acceptable will return error class Services, code Invalid Configuration Data) NOTE: After writing all 9 object allocation counts, a WARMSTART must be issued. All object maps will be cleared.

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): 9600, 19200, 38400,76800
☐ 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 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.
☐ 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:

None.