BACnet Protocol Implementation Conformance Statement

Date: 4th May 2022
Vendor Name: ABB Inc
Product Name: HVAC Drive
Product Model Number: ECI or ECIN
Application Software Version: 2.08 **Firmware Revision:** 2 **BACnet Protocol Revision:** 15

Product Description:
The product will support native BACnet, connecting directly to the MS/TP LAN. MS/TP baud rates are supported up to 115.2 kbps. Over BACnet, the drive can be fully controlled and monitored as a standard variable speed drive. In addition, the drive's standard I/O is available over BACnet to the user application.

BACnet Standardized Device Profiles Supported (Annex L):
☑ BACnet Application Specific Controller (B-ASC)

BACnet Interoperability Building Blocks Supported (Annex K):
DS-RP-B Data Sharing-Read Property

DS-RPM-B Data Sharing-Read Property Multiple

DS-WP-B Data Sharing-Write Property

DM-DDB-B Device Management-DynamicDeviceBinding

DM-DOB-B Device Management-DynamicObjectBinding

DM-DCC-B Device Management-DeviceCommunicationControl

DM-RD-B Device Management-ReinitializeDevice

Segmentation Capability:

☑Able to transmit segmented messages
☑Able to receive segmented messages

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 all properties that are conditionally writable where not otherwise required by this standard
6) List of proprietary properties and for each its property identifier, datatype, and meaning
7) List of any property range restrictions

BACnet Data Link Layer Options:

☑ MS/TP master
Data rates: ☑ 9600 ☑ 19200 ☑ 38400 ☑ 57600 ☑ 76800 ☑ 115200

Device Address Binding:

Is static device binding supported? ☐ 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

Character Sets Supported:

Indicating support for multiple character sets does not imply that they can all be supported simultaneously.

☐ ISO 10646 (UTF-8)	☐ IBM™/Microsoft™ DBCS	☐ ISO 8859-1
☐ ISO 10646 (UCS-2)	☐ ISO 10646 (UCS-4)	☐ JIS X 0208

Gateway Options:

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

_____
_____
_____

If this product is a communication gateway which presents a network of virtual BACnet devices, a separate PICS shall be provided that describes the functionality of the virtual BACnet devices. That PICS shall describe a superset of the functionality of all types of virtual BACnet devices that can be presented by the gateway.

Object/Property Support Matrix:

Property	Object Type					
	Device	Binary Input	Binary Output	Binary Value	Analog Input	Analog Value
Object Identifier	×	×	×	×	×	×
Object Name	×	×	×	×	×	×
Object Type	×	×	×	×	×	×
System Status	×					
Vendor Name	×					
Firmware Revision	×					
Application Software Revision	×					
Protocol Version	×					
Protocol Revision	×					
Protocol Services Supported	×					
Protocol Object Type supported	×					
Object List	×					
Max APDU Length Accepted	×					
Segmentation Supported	×					
APDU Timeout	×					
Number of APDU Retries	×					
Max Master	×					
Max Info Frames	×					
Device Address Binding	×					
Database Revision	×					
Present Value		×	×	×	×	×
Status Flags		×	×	×	×	×
Event State		×	×	×	×	×
Out-of-Service		×	×	×	×	×
Units					×	×
Priority Array			×	×*		×*
Relinquish Default			×	×*		×*
Polarity		×	×			
Active Text		×	×	×		
Inactive Text		×	×	×		

** For commandable values only*

Object Dictionary

Binary input Object:

Object ID	Object Name	Access	Description	Active/Inactive text
BI0	RO1- Monitor	R	Status of relay output 1	On / Off
BI5	DO1- Monitor	R	Status of digital output 1 Note : Statement will be added to the user manual stating "BI5 is only valid if 1501 is configured to a 0-7 setting" This is because when parameter 1501 is set 8-10 then terminal 8 operates as an analogue output and not digital output.	On / Off
BI6	DI1- Monitor	R	Status of digital input 1	On / Off
BI7	DI2- Monitor	R	Status of digital input 2	On / Off
BI8	DI3- Monitor	R	Status of digital input 3	On / Off
BI9	DI4- Monitor	R	Status of digital input 4	On / Off

R =Read only, W = Writeable, C = Commandable.

Binary output Object:

Object ID	Object Name	Access	Description	Active/Inactive text
BO0	RO1- Command	C	Output state of relay 1	On / Off
BO5	DO1- Command	C	Output state of digital output 1	On / Off

R =Read only, W = Writeable, C = Commandable.

Binary Value Object:

Object ID	Object Name	Access	Description	Active/Inactive text
BV0	Run / Stop- Monitor	R	Drive's run status	Run / Stop
BV1	Direction- Monitor	R	Rotational direction of the motor	Reverse / Forward
BV2	OK-FAULT- Monitor	R	Actual fault status of the drive	Fault / OK
BV4	HAND-AUTO-Monitor	R	Actual Operating Mode, Hand = Keypad (1103=1 or 2) Auto = Terminal or BACnet (Fieldbus) (1103 not 1 or 2)	Hand/Auto
BV5	Warning-Monitor	R	Overload status (warning when Output current is >Motor rated current)	Warning / OK
BV7	Ready-Monitor	R	Actual ready status	Ready / Not-Ready
BV8	At-Setpoint-Monitor	R	Actual at setpoint status	Yes / No
BV10	RUN-STOP-Command	C	Command to start drive	Run / Stop
BV11	Direction-Command	C	Command to rotational direction	Reverse / Forward
BV14	Fault-Reset-Command	W	Commanded to fault reset	Reset / No
BV17	Lock-Parameters	R	Actual status of parameter lock	Lock / Unlock
BV41	Fire Mode	R	Indicates if drive is in Fire Mode.	On / Off

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Analog input object instance:

Object ID	Object Name	Access	Description	Units	Min / Max present value
AI0	AI1-Monitor	R	Indicates the input level of analog input 1.	Percent (%)	0…100%
AI1	AI2-Monitor	R	Indicates the input level of analog input 2.	Percent (%)	0…100%

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Analog value object instance:

Object ID	Object Name	Access	Description	Units
AV0	*Output-RPM	R	Motor speed	rpm
AV1	Output-Freq	R	Output frequency	Hz
AV2	DC-Voltage	R	DC bus voltage	V
AV3	Output-Voltage	R	AC output voltage	V
AV4	Output-Current	R	Output current of drive	A
AV5	Output-Torque	R	Output torque of motor as a percentage of nominal torque	%
AV6	Output-Power	R	Output power in kW	kW
AV7	Operating-Temp-Range	R	Heatsink temperature	°C
AV9	Kilowatt-Hour-Meter-NR	R	Drives cumulative energy usage. This value is not resettable	kW/h
AV14	Running-Hours	R	Drives resettable run time.	hours
AV16	Input-Reference-1	C	Speed setpoint 1	% of maximum speed
AV18	Active-Fault	R	Displays most recent fault currently active	
AV19	Previous-Fault-1	R	Displays most recent stored (non-active) fault	
AV20	Previous-Fault-2	R	Displays the second most recent stored (non-active) fault	
AV21	AO1-Monitor	R	Output level of analog output 1	%
AV23	Accel-1-Seconds	W	Ramp 1 acceleration time	s
AV24	Decel-1-Seconds	W	Ramp 1 deceleration time	s
AV29	Min-Speed	W	Defines the allowed minimum output frequency	Hz
AV30	Max-Speed	W	Defines the allowed maximum output frequency	Hz
AV31	Output-Speed	R	Actual motor speed (as % of motor rated frequency value in 9907)	%
AV32	Output-Current-Range	R	Actual motor current (as % of motor rated current value in 9906)	%
AV33	Max-Current	W	Max motor current (Motor rated current value in 9906)	A
AV40	PID Feedback	R	PID controller feedback value monitor	%
AV41	PID reference	R	PID controller reference value monitor	%

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*Value only works if motor rated speed has been entered into parameter 9908, otherwise 0 will always be shown.