BACnet Protocol Implementation Conformance Statement

Date: June 13, 2011
Vendor Name: ABB, Inc. Vendor ID 127
Product Name: BACnet Router
Product Model Number: RBIP-01
Applications Software Version: 1.1 **Firmware Revision:** 2.5 **BACnet Protocol Revision:** 7 (Note 1)

Note 1: RBIP-01 BACnet Router rev 2.5 can be switched to support BACnet Protocol Revision 4 or Revision 7.

Product Description:

The ABB RBIP-01 is a high-performance BACnet router for ABB drives for HVAC, ACH550. The router supports 10/100 MBit/s BACnet/IP and BACnet over Ethernet networks, as well as BACnet MS/TP (EIA-485) network.

The RBIP-01 router supports all standardized BACnet MS/TP baud rates up to 115,2k, as well as the master mode functionality. BBMD (BACnet Broadcast Management Device) and FD (Foreign Device) functionalities are also supported. BACnet slave proxy functionality is supported by firmware 2.5. The web server functionality enables access and configuration of the router using a standard web browser.

The RBIP-01 snap-on router is fully compatible with ABB drives for HVAC, ACH550, including old, future and regional product revisions. The router fits inside the drive and does not affect the protection class of the drive. The router can be powered from the drive or from an external 24V AC or DC power supply.

BACnet Standardized Device Profile (Annex L):

☐ **BACnet Operator Workstation (B-OWS)**
☐ **BACnet Advanced Operator Workstation (B-AWS)**
☐ **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)**

List all BACnet Interoperability Building Blocks Supported (Annex K):

DS-RP-B	Data Sharing-ReadProperty-B
DS-RPM-B	Data Sharing-ReadPropertyMultiple-B
DS-WP-B	Data Sharing-WriteProperty-B
DS-WPM-B	Data Sharing-WritePropertyMultiple-B
DM-DDB-B	Device Management-DynamicDeviceBinding-B
DM-DOB-B	Device Management-DynamicObjectBinding-B
DM-DCC-B	Device Management-DeviceCommunicationControl-B
DM-RD-B	Device Management-ReinitializeDevice-B

Segmentation Capability:

■ Able to transmit segmented messages Window Size: 16
■ Able to receive segmented messages Window Size: 16

Standard Object Types Supported:

Object instantiation is static, i.e. objects cannot be created or deleted.
Refer to tables at end of this document for object details.

Data Link Layer Options:

■ BACnet IP, (Annex J)
■BACnet IP, (Annex J), Foreign Device
■ISO 8802-3, Ethernet (Clause 7)
☐ ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
☐ ATA 878.1, EIA-485 ARCNET (Clause 8), baud rate(s) _____
■ MS/TP master (Clause 9), baud rate(s): 9600, 19200, 38400, 57600, 76800, 115200
☐ 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: _____
☐ BACnet/ZigBee (ANNEX O)
☐ 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
BACnet/IP to MS/TP
BACnet/ ISO 8802-3, Ethernet to MS/TP
BACnet/IP to BACnet/ ISO 8802-3, Ethernet
BACnet/IP to BACnet/ ISO 8802-3, Ethernet to 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
Max BDT (Broadcast Distribution Table)-Entries: 50
Does the BBMD support network address translation? ☐ Yes ■ No

Network Security Options:

■ Non-secure Device - is capable of operating without BACnet Network Security
☐ Secure Device - is capable of using BACnet Network Security (NS-SD BIBB)
☐ Multiple Application-Specific Keys:
☐ Supports encryption (NS-ED BIBB)
☐ Key Server (NS-KS BIBB)

Character Sets Supported:

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

■ ANSIX3.4	☐ IBM™/Microsoft™ DBCS	☐ ISO 8859-1
☐ ISO 10646 (UCS-2)	☐ ISO 10646 (UCS-4)	☐ JIS X 0208

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

_____
_____
_____

Object/Property Support Matrix

The following table summarizes the Object Types/Properties Supported:

Device object

Property Identifier	Property Datatype	Conformance Code 135-2008 revision 7 R=required O=optional	Conformance Code RBIP-01 - =not supported R=readable W=writable
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
System_Status	BACnetDeviceStatus	R	R
Vendor_Name	CharacterString	R	R
Vendor_Identifier	Unsigned16	R	R
Model_Name	CharacterString	R	R
Firmware_Revision	CharacterString	R	R
Application_Software_Version	CharacterString	R	R
Location	CharacterString	O	R
Description	CharacterString	O	R
Protocol_Version	Unsigned	R	R
Protocol_Revision	Unsigned	R	R
Protocol_Services_Supported	BACnetServicesSupported	R	R
Protocol_Object_Types_Supported	BACnetObjectTypesSupported	R	R
Object_List	BACnetARRAY[N]of BACnetObjectIdentifier	R	R
Max_APDU_Length_Accepted	Unsigned	R	R
Segmentation_Supported	BACnetSegmentation	R	R
Max_Segments_Accepted	Unsigned	O	R
VT_Classes_Supported	List of BACnetVTClass	O	-
Active_VT_Sessions	List of BACnetVTSession	O	-
Local_Time	Time	O	-
Local_Date	Date	O	-
UTC_Offset	INTEGER	O	-
Daylight_Savings_Status	BOOLEAN	O	-
APDU_Segment_Timeout	Unsigned	O	R
APDU_Timeout	Unsigned	R	R
Number_Of_APDU_Retries	Unsigned	R	R
List_Of_Session_Keys	List of BACnetSessionKey	O	-
Time_Synchronization_Recipients	List of BACnetRecipient	O	-
Max_Master	Unsigned (1…127)	O	W
Max_Info_Frames	Unsigned (1…127)	O	W
Device_Address_Binding	List of BACnetAddressBinding	R	R
Database_Revision	Unsigned	R	R
Configuration_Files	BACnetARRAY[N] of	O	-
Last_Restore_Time	BACnetObjectIdentifier	O	-
Backup_Failure_Timeout	BACnetTimeStamp	O	-
Active_COV_Subscriptions	Unsigned16	O	-
Slave_Proxy_Enable	List of BACnetCOVSubscription	O	W
Manual_Slave_Address_Binding	BACnetArray[N] of BOOLEAN	O	W
Auto_Slave_Discovery	List of BACnetAddressBinding	O	W
Slave_Address_Binding	BACnetArray[N] of BOOLEAN	O	R
Last_Restart_Reason	List of BACnetAddressBinding	O	-
Time_Of_Device_Restart	BACnetRestartReason	O	-
Restart_Notification_Recipients	BACnetTimeStamp	O	-
UTC_Time_Syncronization_Recipients	List of BACnet recipients	O	-
Time_Syncronization_Interval	List of BACnet recipients	O	-
Align_Intervals	Unsigned	O	-
Interval_Offset	BOOLEAN	O	-
Profile_Name	Unsigned CharacterString	O	-

Multistate-Value object

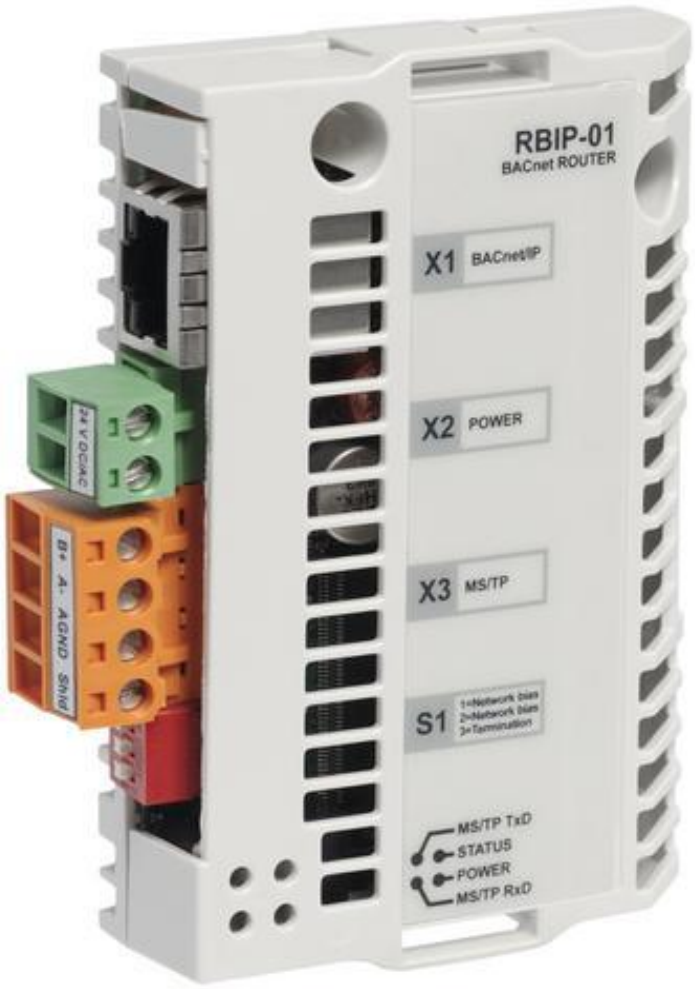
Property Identifier	Property Datatype	Conformance Code 135-2008 revision 7 R=required O=optional	Conformance Code RBIP-01 - =not supported R=readable W=writable
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Present_Value	Unsigned	R	R
Description	CharacterString	O	R
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	BACnetReliability	O	-
Out_Of_Service	BOOLEAN	R	R
Number_Of_States	Unsigned	R	R
State_Text	BACnetARRAY[N] of CharacterString	O	R
Priority_Array	BACnetPriorityArray	O	-
Relinquish_Default	Unsigned	O	-
Time_Delay	Unsigned	O	-
Notification_Class	Unsigned	O	-
Alarm_Values	List of Unsigned	O	-
Fault_Values	List of Unsigned	O	-
Event_Enable	BACnetEventTransitionBits	O	-
Acked_Transitions	BACnetEventTransitionBits	O	-
Notify_Type	BACnetNotifyType	O	-
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	O	-
Event_Message_Texts	BACnetARRAY[3] of CharacterString	O	-
Profile_Name	CharacterString	O	-

Multi-State-Value object #1 represents the router status. The states apply:
1 = Running w/ default configuration
2 = Running configured
3 = Preparing for reboot

Multi-State-Value object #2 represents the Ethernet interface status. The states apply:
1 = Not connected
2 = Connected 10MB
3 = Connected 100MB
4 = Connected (DHCP active)
5 = Error

Multi-State-Value object #3 represents the MS/TP interface status. The states apply:
1 = Not configured
2 = Not connected
3 = OK
4 = Error

Product photo, RBIP-01 BACnet router



BACnet Protocol Implementation Conformance Statement

Date: October 27, 2008
Vendor Name: ABB, Inc
Product Name: BACnet Router
Product Model Number: RBIP-01
Applications Software Version: 1.1 **Firmware Revision:** 2.1 **BACnet Protocol Revision:** 4

Product Description:

The ABB RBIP-01 snap-on module is a high-performance BACnet router for ABB drives for HVAC, ACH550. This router supports 10/100 MBit/s BACnet/IP and BACnet over Ethernet networks, as well as BACnet MS/TP (EIA-485) network.

The RBIP-01 router supports all standardized BACnet MS/TP baud rates up to 76.8k, as well as the master mode functionality. BBMD (BACnet Broadcast Management Device) and FD (Foreign Device) functionalities are also supported. The web server functionality enables access and configuration of the router using a standard web browser.

The RBIP-01 snap-on router is fully compatible with ABB drives for HVAC, ACH550, including older product generations. The router fits inside the drive and does not affect the enclosure class of the drive. The router can be powered from the drive or from an external power supply.

BACnet Standardized Device Profile (Annex L):

☐ **BACnet Operator Workstation (B-OWS)**
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DS-WPM-B	Data Sharing-WritePropertyMultiple-B
DM-DDB-B	Device Management-DynamicDeviceBinding-B
DM-DOB-B	Device Management-DynamicObjectBinding-B
DM-DCC-B	Device Management-DeviceCommunicationControl-B
DM-RD-B	Device Management-ReinitializeDevice-B

Segmentation Capability:

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

Standard Object Types Supported:

Object instantiation is static, i.e. objects cannot be created or deleted.
Refer to tables at end of this document for object details.

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
BACnet/IP to MS/TP
BACnet/ ISO 8802-3, Ethernet to MS/TP
BACnet/IP to BACnet/ ISO 8802-3, Ethernet
☐ Annex H, BACnet Tunneling Router over IP
■ BACnet/IP Broadcast Management Device (BBMD)
Does the BBMD support registrations by Foreign Devices? ■ Yes ☐ No
Max BDT (Broadcast Distribution Table)-Entries: 30

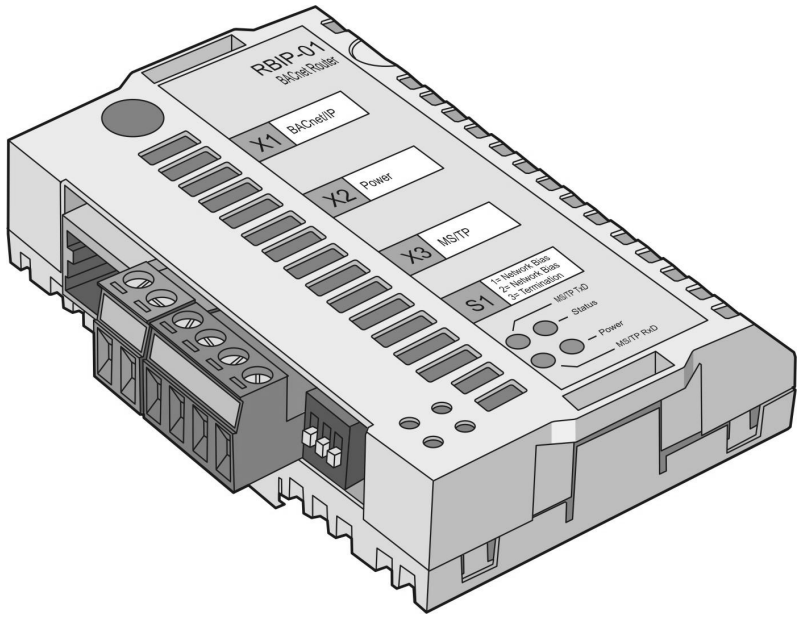
Character Sets Supported:

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:

_____
_____
_____



Object/Property Support Matrix

The following table summarizes the Object Types/Properties Supported:

Property Identifier	Property Datatype	Conformance Code 135-2004	Conformance Code RBIP-01
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
System_Status	BACnetDeviceStatus	R	R
Vendor_Name	CharacterString	R	R
Vendor_Identifier	Unsigned16	R	R
Model_Name	CharacterString	R	R
Firmware_Revision	CharacterString	R	R
Application_Software_Version	CharacterString	R	R
Location	CharacterString	O	R
Description	CharacterString	O	R
Protocol_Version	Unsigned	R	R
Protocol_Revision	Unsigned	R	R
Protocol_Services_Supported	BACnetServicesSupported	R	R
Protocol_Object_Types_Supported	BACnetObjectTypesSupported	R	R
Object_List	BACnetARRAY[N]of BACnetObjectIdentifier	R	R
Max_APDU_Length_Accepted	Unsigned	R	R
Segmentation_Supported	BACnetSegmentation	R	R
Max_Segments_Accepted	Unsigned	O	R
VT_Classes_Supported	List of BACnetVTClass	O	-
Active_VT_Sessions	List of BACnetVTSession	O	-
Local_Time	Time	O	-
Local_Date	Date	O	-
UTC_Offset	INTEGER	O	-
Daylight_Savings_Status	BOOLEAN	O	-
APDU_Segment_Timeout	Unsigned	O	R
APDU_Timeout	Unsigned	R	R
Number_Of_APDU_Retries	Unsigned	R	R
List_Of_Session_Keys	List of BACnetSessionKey	O	-
Time_Synchronization_Recipients	List of BACnetRecipient	O	-
Max_Master	Unsigned (1…127)	O	W
Max_Info_Frames	Unsigned (1…127)	O	W
Device_Address_Binding	List of BACnetAddressBinding	R	R
Database_Revision	Unsigned	R	R
Configuration_Files	BACnetARRAY[N] of BACnetObjectIdentifier	O	-
Last_Restore_Time	BACnetTimeStamp	O	-
Backup_Failure_Timeout	Unsigned16	O	-
Active_COV_Subscriptions	List of BACnetCOVSubscription	O	-
Slave_Proxy_Enable	BACnetArray[N] of BOOLEAN	O	-
Manual_Slave_Address_Binding	List of BACnetAddressBinding	O	-
Auto_Slave_Discovery	BACnetArray[N] of BOOLEAN	O	-
Slave_Address_Binding	List of BACnetAddressBinding	O	-
Profile_Name	CharacterString	O	-