

BACnet Protocol Implementation Conformance Statement

Date: April 1, 2013

Vendor Name: Blue Ridge Technologies International

Product Name: Aperio

Product Model Number: ZC, RP, RK, RI

Application Software Version: NA **Firmware Revision:** 1.1.x **BACnet Protocol Revision:** 135-2010 rev. 12

Product Description:

The Aperio Controller Board is a general purpose lighting controller used across the Blue Ridge Technologies product line. This product supports native BACnet connecting directly to the MS/TP LAN. All standard MS/TP baud rates are supported. All B-AAC required objects are supported. The quantities of each object available are dependent upon factory configuration since this Aperio Controller Board can be provided in products that serve as few as two lighting zones up to products that serve 999 lighting zones.

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, DS-RPM-B, DS-WP-B, DS-WPM-B, DS-COV-B, DS-COVU-B, AE-N-I-B, AE-ACK-B, AE-INFO-B, SCHED-I-B, DM-DDB-B, DM-DOB-B, DM-DCC-B, DM-TS-B, DM-UTC-B

Segmentation Capability:

- Able to transmit segmented messages Window Size _____
- Able to receive segmented messages Window Size _____

Standard Object Types Supported:

Objects are not creatable nor deletable using the CreateObject or the DeleteObject services.

Object/Property Support Matrix

The following table summarizes the Object Types/Properties supported:

Property	Object Type				
	Device	Binary Value	Analog Value	Calendar	Schedule
Object_Identifier	X	X	X	X	X
Object_Name	X	X	X	X	X

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Object_Type	X	X	X	X	X
System_Status	X				
Vendor_Identifier	X				
Model_Name	X				
Firmware_Revision	X				
Application_Software_Version	X				
Protocol_Version	X				
Protocol_Revision	X				
Protocol_Services_Supported	X				
Object_Types_Supported	X				
Object_List	X				
Max_APDU_Length_Accepted	X				
Segmentation_Supported	X				
Local_Time	X				
Local_Date	X				
UTC_Offset	X				
Daylight_Savings_Status	X				
APDU_Timeout	X				
Number_Of_APDU_Retries	X				
Max_Master	X				
Max_Info_Frames	X				
Device_Address_Binding	X				
Database_Revision	X				
Configuration_Files	X				
Last_Restore_Time	X				
Backup_Failure_Timeout	X				
Present_Value		X	X	X	X
Status_Flags		X	X		X
Event_State		X	X		
Out_Of_Service		X	X		
Priority_Array		X*	X*		
Relinquish_Default		X*	X*		
Units			X		
Date_List				X	
Effective_Period					X
Weekly_Schedule					X
Execption_Schedule					X
Schedule_Default					X
List_Of_Object_Property_Ref					X
Priority_For_Writing					X
Reliability					X
Out_Of_Service					X
Notification_Class		X	X		
Event_Enable		X	X		
Acked_Transitions		X	X		
Notify_Type		X	X		
Event_Time_Stamps		X	X		
Time_Delay		X	X		
Alarm_Value		X			
High_Limit			X		
Low_Limit			X		
Deadband			X		
Limit_Enabled			X		

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* For commandable values only.

Binary Value Instance Summary

The following table summarizes the Binary Value Objects supported:

Instance ID	Object Name	Multiple Instance Key	Description	Present Value Access Type
10yxxx	DIGITAL_INPUT_10yxxx	y – controller slot number xxx – digital input instance from 1 - 128	Indicates the status of a binary input, either on or off.	R
20y0xx	LOAD_STATUS_20y0xx	y – controller slot number xx – load status instance from 1 - 64	Indicates whether a given load relay is open or closed. On indicates the relay is closed. Off indicates the relay is open.	R
30y0xx	LINE_VOLTAGE_INPUT_30y0xx	y – controller slot number xx – line voltage input instance 1 - 64	Indicates the status of a line voltage input, either on or off.	R
10000xx	RUN_COMMAND_10000xx	xx – run command instance from 1 - 16	Controls mode of operation. On is when occupants are expected present. Off when occupants are expected not present.	C

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays and relinquish defaults.

Analog Value Instance Summary

The following table summarizes the Analog Value Objects supported:

Instance ID	Object Name	Multiple Instance Key	Description	Units	Present Value Access Type
10yxxx	ANALOG_INPUT_10yxxx	y – controller slot number from 0 - 8 xxx – analog input instance from 1 - 128	Indicates the status value of an analog input.		R
10yy000	OCC_TIMER_OCC_MODE_10yy000	yy – channel number 1 - 64	Timer value used to count down time during occupied mode as occupancy timer times out.	Minutes	C
11yy000	OCC_TIMER_UNOCC_MODE_11yy000	yy – channel number 1 - 64	Timer value used to count down time during	Minutes	C

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			unoccupied mode as occupancy timer times out.		
12yy000	DAY_HARVEST_SETPT_12yy000	yy – channel number 1 - 64	Daylight harvesting setpoint.	Foot Candles	C
13yy000	OVERRIDE_TIMER_13yy000	yy – channel number 1 - 64	Timer value in minutes used to count down time when override is initiated by the space occupant.	Minutes	C
14yy000	LIGHT_LEVEL_14yy000	yy – channel number 1 - 64	Indicates the load status of the respective relay.	Percent	R

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays and relinquish defaults.

Calendar Instance Summary

The following table summarizes the Calendar Objects supported:

Instance ID	Object Name	Multiple Instance Key	Description	Date_List Access Type
1000xx	CALENDAR_1000xx	xx – calendar instance from 1 - 16	Calendars for exception schedules.	W

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays and relinquish defaults.

Schedule Instance Summary

The following table summarizes the Schedule Objects supported:

Instance ID	Object Name	Multiple Instance Key	Description	Date_List Access Type
1000xx	SCHEDULE_1000xx	xx – schedule instance from 1 - 16	Schedules to be assigned to lighting channels.	W

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays and relinquish defaults.

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

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- 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 - 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
 - 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.

- ISO 10646 (UTF-8)
- 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:
