BACnet Compatibility Specifications

Specifications for Controllers and Gateways

Schneider Electric

Disclaimer

Overview

This document outlines the BACnet compatibility specifications of the Schneider Electric Multi-Purpose Manager (MPM) Controllers and Gateways. The document follows the BACnet PICS format.

This document applies to the following products:

MPM-GW – Gateway Controller

MPM-UN – Universal Controller

MPM-VA – VAV Controller

BACnet Protocol Implementation Conformance Statement

Date: July 2018

Vendor Name: Schneider Electric

Product Name: SSL Controllers and Gateways

Product Model Number: MPM-UN, MPM-VA, MPM-GW

Application Software Version: 0.5.3

Firmware Revision: 2.21

BACnet Protocol Revision: Version 1, revision 12

PRODUCT DESCRIPTION

A flexible line of Controllers and Gateways allowing Facility Managers, Contractors, and OEM Manufacturers to deploy integrated solutions for HVAC, lighting and metering, quickly and efficiently linking multiple devices based on many standard protocols including EnOcean, Zigbee Pro, Modbus, CANbus, and BACnet.

SSL Controllers support both BACnet IP and Ethernet. These devices also support both BACnet server functionality and BACnet client functionality. In addition, all Controllers and Gateways have an embedded web-enabled Building Management System that provides most of the functionality required of a B-BC and B-OWS.

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)	X
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):

Data Sharing	
Data Sharing – ReadProperty-B	DS-RP-B
Data Sharing – ReadPropertyMultiple-B	DS-RPM-B
Data Sharing – WriteProperty-B	DS-WP-B
Data Sharing – WritePropertyMultiple-B	DS-WPM-B
Data Sharing – Change of Value-B	DS-COV-B

Device management

- Dynamic Device Binding-A (DM-DDB-A) (Initiating WHO-IS and Executing I-AM)
- Dynamic Device Binding-B (DM-DDB-B) (Initiating WHO-IS and Sending I-AM)
- Dynamic Object Binding-B (DM-DOB-B) (Initiating I-HAVE and Executing WHO-HAS)
- Device Communication Control (DM-DCC-B)
- Reinitialize Device (DM-RD-B)
- TimeSynchronization and UTCTimeSynchronization (DM-TS-B and DM-UTC-B)

Alarming

- Alarm and Event Notification Internal (AE-N-I-B)
- Alarm and Event Acknowledge (AE-ACK-B)
- Alarm and Event Information (AE-INFO-B)

Scheduling

- Scheduling Internal (SCHED-I-B)

Gateway/Routing

- Gateway-Virtual network (GW-VN-B)

Segmentation Capability

None.

Standard Object Types Supported

- **Object Type: Analog Input**

Property	(R) Required (O) Optional	(R) Read-Only (W) Writeable	Restriction
Object-Identifier	R	R	
Object-Name	R	W	1-32 characters
Object-Type	R	R	
Present-Value	R	R	
Description	O	W	0-255 characters
Status-Flags	R	R	
Event-State	R	R	
Out-of-Service	R	R	
Units	R	R	
Cov-Increment	O	W	0 - 2147483520
Time-Delay	O	W	
Notification-Class	O	W	
High-Limit	O	W	Low-Limit - 2147483520
Low-Limit	O	W	-2147483392 - High-Limit
Deadband	O	W	0 - 2147483520
Limit-Enable	O	W	

Event-Enable	O	W	
Acked-Transitions	O	R	
Notify-Type	O	W	
Event-Time-Stamps	O	R	

- **Object Type: Analog Output**

Property	(R) Required (O) Optional	(R) Read-Only (W) Writeable	Restriction
Object-Identifier	R	R	
Object-Name	R	W	1-32 characters
Object-Type	R	R	
Present-Value	R	W	
Description	O	W	0-255 characters
Status-Flags	R	R	
Event-State	R	R	
Out-of-Service	R	R	
Units	R	R	
Cov-Increment	O	W	0 - 2147483520
Time-Delay	O	W	
Notification-Class	O	W	
High-Limit	O	W	Low-Limit - 2147483520
Low-Limit	O	W	-2147483392 - High-Limit
Deadband	O	W	0 - 2147483520
Limit-Enable	O	W	
Event-Enable	O	W	
Acked-Transitions	O	R	
Notify-Type	O	W	
Event-Time-Stamps	O	R	

- **Object Type: Analog Value**

Property	(R) Required (O) Optional	(R) Read-Only (W) Writeable	Restriction
Object-Identifier	R	R	
Object-Name	R	W	1-32 characters
Object-Type	R	R	
Present-Value	R	R	
Description	O	W	0-255 characters
Status-Flags	R	R	
Event-State	R	R	
Out-of-Service	R	R	
Units	R	R	
Cov-Increment	O	W	0 - 2147483520
Time-Delay	O	W	
Notification-Class	O	W	
High-Limit	O	W	Low-Limit - 2147483520
Low-Limit	O	W	-2147483392 - High-Limit

Deadband	O	W	0 - 2147483520
Limit-Enable	O	W	
Event-Enable	O	W	
Acked-Transitions	O	R	
Notify-Type	O	W	
Event-Time-Stamps	O	R	

- **Object Type: Binary Input**

Property	(R) Required (O) Optional	(R) Read-Only (W) Writeable	Restriction
Object-Identifier	R	R	
Object-Name	R	W	1-32 characters
Object-Type	R	R	
Present-Value	R	R	
Description	O	W	0-255 characters
Status-Flags	R	R	
Event-State	R	R	
Out-of-Service	R	R	
Polarity	R	R	
Inactive-Text	O	R	
Active-Text	O	R	
Time-Delay	O	W	
Notification-Class	O	W	
Alarm-Value	O	W	
Event-Enable	O	W	
Acked-Transitions	O	R	
Notify-Type	O	W	
Event-Time-Stamps	O	R	

- **Object Type: Binary Output**

Property	(R) Required (O) Optional	(R) Read-Only (W) Writeable	Restriction
Object-Identifier	R	R	
Object-Name	R	W	1-32 characters
Object-Type	R	R	
Present-Value	R	R	
Description	O	W	0-255 characters
Status-Flags	R	R	
Event-State	R	R	
Out-of-Service	R	R	
Polarity	R	R	
Inactive-Text	O	R	
Active-Text	O	R	
Priority-Array	R	R	
Relinquish-Default	R	W	

- **Object Type: Binary Value**

Property	(R) Required (O) Optional	(R) Read-Only (W) Writeable	Restriction
Object-Identifier	R	R	
Object-Name	R	W	1-32 characters
Object-Type	R	R	
Present-Value	R	R	
Description	O	W	0-255 characters
Status-Flags	R	R	
Event-State	R	R	
Out-of-Service	R	R	
Inactive-Text	O	R	
Active-Text	O	R	
Time-Delay	O	W	
Notification-Class	O	W	
Alarm-Value	O	W	
Event-Enable	O	W	
Acked-Transitions	O	R	
Notify-Type	O	W	
Event-Time-Stamps	O	R	

- **Object Type: Calendar**

Property	(R) Required (O) Optional	(R) Read-Only (W) Writeable	Restriction
Object-Identifier	R	R	
Object-Name	R	W	1-32 characters
Object-Type	R	R	
Present-Value	R	R	
Description	O	W	0-255 characters
Date-List	R	W	

- **Object Type: Program**

Property	(R) Required (O) Optional	(R) Read-Only (W) Writeable	Restriction
Object-Identifier	R	R	
Object-Name	R	W	1-32 characters
Object-Type	R	R	
Program-State	R	R	
Program-Change	R	W	run, halt
Description	O	W	0-255 characters
Status-Flags	R	R	
Out-of-Service	R	R	

- **Object Type: Loop**

Property	(R) Required (O) Optional	(R) Read-Only (W) Writeable	Restriction
Object-Identifier	R	R	
Object-Name	R	W	1-32 characters
Object-Type	R	R	
Present-Value	R	R	
Description	O	W	0-255 characters
Status-Flags	R	R	
Event-State	R	R	
Out-Of-Service	R	W	
Output-units	R	R	
Manipulated-Variable-Reference	R	W	
Controlled-Variable-Reference	R	W	
Controlled-Variable-Value	R	R	
Controlled-Variable-Units	R	R	
Setpoint-Reference	R	W	
Setpoint	R	W	
Action	R	W	
Proportional-Constant	O	W	
Proportional-Constant-Units	O	R	
Integral-Constant	O	W	
Integral-Constant-Units	O	R	
Derivative-Constant	O	W	
Derivative-Constant-Units	O	R	
Bias	O	W	
Priority-For-Writing	R	W	1-16

- **Object Type: Multi-State Value**

Property	(R) Required (O) Optional	(R) Read-Only (W) Writeable	Restriction
Object-Identifier	R	R	
Object-Name	R	W	1-32 characters
Object-Type	R	R	
Present-Value	R	R	
Description	O	W	0-255 characters
Status-Flags	R	R	
Event-State	R	R	
Reliability	O	R	
Out-Of-Service	R	R	
Number-Of-States	R	R	
State-Text	O	R	
Time-Delay	O	W	
Notification-Class	O	W	

Alarm-Values	O	W	
Fault-Values	O	W	
Event-Enable	O	W	
Acked-Transitions	O	R	
Notify-Type	O	W	
Event-Time-Stamps	O	R	

- **Object Type: Schedule**

Property	(R) Required (O) Optional	(R) Read-Only (W) Writeable	Restriction
Object-Identifier	R	R	
Object-Name	R	W	1-32 characters
Object-Type	R	R	
Present-Value	R	R	
Description	O	W	0-255 characters
Effective-Period	R	W	
Weekly-Schedule	O	W	
Exception-Schedule	O	W	
Schedule-Default	R	W	
List-Of-Object-Property-References	R	W	
Priority-For-Writing	R	R	
Status-Flags	R	R	
Reliability	R	R	
Out-Of-Service	R	R	

- **Object Type: Notification Class**

Property	(R) Required (O) Optional	(R) Read-Only (W) Writeable	Restriction
Object-Identifier	R	R	
Object-Name	R	W	1-32 characters
Object-Type	R	R	
Description	O	W	0-255 characters
Notification-Class	R	R	
Priority	R	W	
Ack-Required	R	W	
Recipient-List	R	W	

Data Link Layer Options

BACnet IP, (Annex J)	X
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)	
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

Static device binding is currently not supported.

Networking Options

Router, Clause 6 - List all routing configurations, for example, ARCNET-Ethernet, Ethernet-MS/TP, etc.	
Annex H, BACnet Tunneling Router over IP	

Network Security Options

Non-secure Device - is capable of operating without BACnet Network Security	X
Secure Device - 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 they can all be supported simultaneously.

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

Gateway Support Types for Non-BACnet Equipment/Networks(s)

- SSL Controllers and Gateways can act as Gateways to BACnet for a variety of devices that support the following protocols:
- EnOcean
- ZigBee Pro
- CANOpen
- Modbus