

# **BACnet Protocol Implementation Conformance Statement (PICS)**

|                                      |                                     |
|--------------------------------------|-------------------------------------|
| <b>Date:</b>                         | July 2021                           |
| <b>Vendor Name:</b>                  | ABB                                 |
| <b>Vendor ID:</b>                    | 808                                 |
| <b>Product Name:</b>                 | Programmable Logic Controller AC500 |
| <b>Product Model Number:</b>         | AC500 PM5###-*                      |
| <b>Application Software Version:</b> | 1.14.1                              |
| <b>Firmware Revision:</b>            | 3                                   |
| <b>BACnet Protocol Revision:</b>     | 14                                  |

## **Product Description:**

The AC500 PLC-family is a general purpose, freely programmable and very scalable PLCfamily. It can use beneath many other protocols also BACnet/IP communication to other controllers, devices and operator workstations. It is fully designed for infrastructure and industrial applications.

#, \* See document “Main Catalog PLC Automation”, CPU Selector for detailed information about usable CPU-options and features.

They represent additional type information for other features, performance, memory or environmental options which do not affect the AC500 BACnet implementation or the functionality described in this document.

## **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):

### Data Sharing BIBBs

|           |                                  |
|-----------|----------------------------------|
| DS-RP-A   | Read Property-A                  |
| DS-RP-B   | Read Property-B                  |
| DS-RPM-A  | Read Property Multiple-A         |
| DS-RPM-B  | Read Property Multiple-B         |
| DS-WP-A   | Write Property-A                 |
| DS-WP-B   | Write Property-B                 |
| DS-WPM-B  | Write Property Multiple-B        |
| DS-COV-A  | Change Of Value-A                |
| DS-COV-B  | Change Of Value-B                |
| DS-COVP-A | Change Of Value of Properties-A  |
| DS-COVP-B | Change Of Value of Properties -B |

### Alarm and Event Management BIBBs

|           |                                         |
|-----------|-----------------------------------------|
| AE-N-I-B  | Alarm and Event-Notification Internal-B |
| AE-N-E-B  | Alarm and Event-Notification External-B |
| AE-ACK-B  | Alarm and Event-Acknowledgement-B       |
| AE-ASUM-B | Alarm and Event-Alarm Summary-B         |
| AE-ESUM-B | Alarm and Event-Enrollment Summary-B    |
| AE-INFO-B | Alarm and Event-Information-B           |

### Scheduling BIBBs

|           |                       |
|-----------|-----------------------|
| SCHED-I-B | Scheduling-Internal-B |
| SCHED-E-B | Scheduling-External-B |

### Trending BIBBs

|           |                                         |
|-----------|-----------------------------------------|
| T-VMT-I-B | Viewing and Modifying Trends Internal-B |
| T-VMT-E-B | Viewing and Modifying Trends External-B |
| T-ATR-B   | Automated Trend Retrieval-B             |

### Device and Network Management BIBBs

|           |                                |
|-----------|--------------------------------|
| DM-DDB-A  | Dynamic Device Binding-A       |
| DM-DDB-B  | Dynamic Device Binding-B       |
| DM-DOB-B  | Dynamic Object Binding-B       |
| DM-DCC-B  | Device Communication Control-B |
| DM-TS-B   | Time Synchronization-B         |
| DM-UTC-B  | UTC Time Synchronization-B     |
| DM-MTS-A  | Manual Time Synchronization-A  |
| DM-RD-B   | Reinitialize Device-B          |
| DM-BR-B   | Backup and Restore-B           |
| DM-LM-B   | List Manipulation-B            |
| DM-OCD-B  | Object Creation and Deletion-B |
| NM-BBMD-B | BBMD Configuration-B           |

## Standard Object Types Supported:

| Object Type            | Dynamically Creatable / Deletable |
|------------------------|-----------------------------------|
| Analog Input           | Yes / Yes                         |
| Analog Output          | Yes / Yes                         |
| Analog Value           | Yes / Yes                         |
| Binary Input           | Yes / Yes                         |
| Binary Output          | Yes / Yes                         |
| Binary Value           | Yes / Yes                         |
| Calendar               | Yes / Yes                         |
| Command                | Yes / Yes                         |
| Device                 | no                                |
| Event Enrollment       | Yes / Yes                         |
| File                   | Yes / Yes                         |
| Integer Value          | Yes / Yes                         |
| Large Analog Value     | Yes / Yes                         |
| Loop                   | Yes / Yes                         |
| Multi-state Input      | Yes / Yes                         |
| Multi-state Output     | Yes / Yes                         |
| Multi-state Value      | Yes / Yes                         |
| Notification Class     | Yes / Yes                         |
| Positive Integer Value | Yes / Yes                         |
| Schedule               | Yes / Yes                         |
| Structured View        | Yes / Yes                         |
| Trend Log              | Yes / Yes                         |

### Property Range Restrictions:

General implementation details on the property list:

- All properties are listed with their data types and conformance code as specified in the BACnet standard.
- Read/Write access is identified by “R” for read-only properties, “W” represents writable properties. Most properties can be configured regarding their existence, writability and persistence. The documented Read/Write access represents the default configuration aligned with the recommendations of AMEV-AS-B.
- If not otherwise specified, all properties support the required ranges defined in the BACnet standard.
- All Character-String properties support up to 255 characters.

## Analog Input (0)

| Property Name                  | Datatype                                   | Conf. Code | WA |
|--------------------------------|--------------------------------------------|------------|----|
| Object_Identifier              | BACnetObjectIdentifier                     | R          | R  |
| Object_Name                    | CharacterString                            | R          | R  |
| Object_Type                    | BACnetObjectType                           | R          | R  |
| Present_Value                  | REAL                                       | R1         | R  |
| Description                    | CharacterString                            | O          | W  |
| Device_Type                    | CharacterString                            | O          | R  |
| Status_Flags                   | BACnetStatusFlags                          | R          | R  |
| Event_State                    | BACnetEventState                           | R          | R  |
| Reliability                    | BACnetReliability                          | O          | R  |
| Out_Of_Service                 | BOOLEAN                                    | R          | W  |
| Update_Interval                | Unsigned                                   | O          | R  |
| Units                          | BACnetEngineeringUnits                     | R          | R  |
| Min_Pres_Value                 | REAL                                       | O          | R  |
| Max_Pres_Value                 | REAL                                       | O          | R  |
| Resolution                     | REAL                                       | O          | R  |
| COV_Increment                  | REAL                                       | O2         | W  |
| Time_Delay                     | Unsigned                                   | O3,5       | W  |
| Notification_Class             | Unsigned                                   | O3,5       | W  |
| High_Limit                     | REAL                                       | O3,5       | W  |
| Low_Limit                      | REAL                                       | O3,5       | W  |
| Deadband                       | REAL                                       | O3,5       | W  |
| Limit_Enable                   | BACnetLimitEnable                          | O3,5       | W  |
| Event_Enable                   | BACnetEventTransitionBits                  | O3,5       | W  |
| Acked_Transitions              | BACnetEventTransitionBits                  | O3,5       | R  |
| Notify_Type                    | BACnetNotifyType                           | O3,5       | R  |
| Event_Time_Stamps              | BACnetARRAY[3] of BACnetTimeStamp          | O3,5       | R  |
| Event_Message_Texts            | BACnetARRAY[3] of CharacterString          | O4,5       | R  |
| Event_Message_Texts_Config     | BACnetARRAY[3] of CharacterString          | O5         | R  |
| Event_Detection_Enable         | BOOLEAN                                    | O3,5       | R  |
| Event_Algorithm_Inhibit_Ref    | BACnetObjectPropertyReference              | O5         | R  |
| Event_Algorithm_Inhibit        | BOOLEAN                                    | O5,6       | R  |
| Time_Delay_Normal              | Unsigned                                   | O5         | R  |
| Reliability_Evaluation_Inhibit | BOOLEAN                                    | O7         | R  |
| Property_List                  | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name                   | CharacterString                            | O          | W  |

- 1 This property is required to be writable when Out\_Of\_Service is TRUE.
- 2 This property is required if, and shall be present only if, the object supports COV reporting.
- 3 These properties are required if the object supports intrinsic reporting.
- 4 This property, if present, is required to be read-only.
- 5 These properties shall be present only if the object supports intrinsic reporting.
- 6 Event\_Algorithm\_Inhibit shall be present if Event\_Algorithm\_Inhibit\_Ref is present.
- 7 If this property is present, then the Reliability property shall be present.

## Analog Output (1)

| Property Name                  | Datatype                                   | Conf. Code | WA |
|--------------------------------|--------------------------------------------|------------|----|
| Object_Identifier              | BACnetObjectIdentifier                     | R          | R  |
| Object_Name                    | CharacterString                            | R          | R  |
| Object_Type                    | BACnetObjectType                           | R          | R  |
| Present_Value                  | REAL                                       | W          | W  |
| Description                    | CharacterString                            | O          | W  |
| Device_Type                    | CharacterString                            | O          | R  |
| Status_Flags                   | BACnetStatusFlags                          | R          | R  |
| Event_State                    | BACnetEventState                           | R          | R  |
| Reliability                    | BACnetReliability                          | O          | R  |
| Out_Of_Service                 | BOOLEAN                                    | R          | W  |
| Units                          | BACnetEngineeringUnits                     | R          | R  |
| Min_Pres_Value                 | REAL                                       | O          | R  |
| Max_Pres_Value                 | REAL                                       | O          | R  |
| Resolution                     | REAL                                       | O          | R  |
| Priority_Array                 | BACnetPriorityArray                        | R          | R  |
| Relinquish_Default             | REAL                                       | R          | R  |
| COV_Increment                  | REAL                                       | O1         | W  |
| Time_Delay                     | Unsigned                                   | O2,4       | W  |
| Notification_Class             | Unsigned                                   | O2,4       | W  |
| High_Limit                     | REAL                                       | O2,4       | W  |
| Low_Limit                      | REAL                                       | O2,4       | W  |
| Deadband                       | REAL                                       | O2,4       | W  |
| Limit_Enable                   | BACnetLimitEnable                          | O2,4       | W  |
| Event_Enable                   | BACnetEventTransitionBits                  | O2,4       | W  |
| Acked_Transitions              | BACnetEventTransitionBits                  | O2,4       | R  |
| Notify_Type                    | BACnetNotifyType                           | O2,4       | R  |
| Event_Time_Stamps              | BACnetARRAY[3] of BACnetTimeStamp          | O2,4       | R  |
| Event_Message_Texts            | BACnetARRAY[3] of CharacterString          | O3,4       | R  |
| Event_Message_Texts_Config     | BACnetARRAY[3] of CharacterString          | O4         | R  |
| Event_Detection_Enable         | BOOLEAN                                    | O2,4       | R  |
| Event_Algorithm_Inhibit_Ref    | BACnetObjectPropertyReference              | O4         | R  |
| Event_Algorithm_Inhibit        | BOOLEAN                                    | O4,5       | R  |
| Time_Delay_Normal              | Unsigned                                   | O4         | R  |
| Reliability_Evaluation_Inhibit | BOOLEAN                                    | O6         | R  |
| Property_List                  | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name                   | CharacterString                            | O          | W  |

1 This property is required if, and shall be present only if, the object supports COV reporting.

2 These properties are required if the object supports intrinsic reporting.

3 This property, if present, is required to be read-only.

4 These properties shall be present only if the object supports intrinsic reporting.

5 Event\_Algorithm\_Inhibit shall be present if Event\_Algorithm\_Inhibit\_Ref is present.

6 If this property is present, then the Reliability property shall be present.

## Analog Value (2)

| Property Name                  | Datatype                                   | Conf. Code | WA |
|--------------------------------|--------------------------------------------|------------|----|
| Object_Identifier              | BACnetObjectIdentifier                     | R          | R  |
| Object_Name                    | CharacterString                            | R          | R  |
| Object_Type                    | BACnetObjectType                           | R          | R  |
| Present_Value                  | REAL                                       | R4         | W  |
| Description                    | CharacterString                            | O          | W  |
| Status_Flags                   | BACnetStatusFlags                          | R          | R  |
| Event_State                    | BACnetEventState                           | R          | R  |
| Reliability                    | BACnetReliability                          | O          | R  |
| Out_Of_Service                 | BOOLEAN                                    | R          | W  |
| Units                          | BACnetEngineeringUnits                     | R          | R  |
| Priority_Array                 | BACnetPriorityArray                        | O1         | R  |
| Relinquish_Default             | REAL                                       | O1         | R  |
| COV_Increment                  | REAL                                       | O2         | W  |
| Time_Delay                     | Unsigned                                   | O3,6       | W  |
| Notification_Class             | Unsigned                                   | O3,6       | W  |
| High_Limit                     | REAL                                       | O3,6       | W  |
| Low_Limit                      | REAL                                       | O3,6       | W  |
| Deadband                       | REAL                                       | O3,6       | W  |
| Limit_Enable                   | BACnetLimitEnable                          | O3,6       | W  |
| Event_Enable                   | BACnetEventTransitionBits                  | O3,6       | W  |
| Acked_Transitions              | BACnetEventTransitionBits                  | O3,6       | R  |
| Notify_Type                    | BACnetNotifyType                           | O3,6       | R  |
| Event_Time_Stamps              | BACnetARRAY[3] of BACnetTimeStamp          | O3,6       | R  |
| Event_Message_Texts            | BACnetARRAY[3] of CharacterString          | O5,6       | R  |
| Event_Message_Texts_Config     | BACnetARRAY[3] of CharacterString          | O6         | R  |
| Event_Detection_Enable         | BOOLEAN                                    | O3,6       | R  |
| Event_Algorithm_Inhibit_Ref    | BACnetObjectPropertyReference              | O6         | R  |
| Event_Algorithm_Inhibit        | BOOLEAN                                    | O6,7       | R  |
| Time_Delay_Normal              | Unsigned                                   | O6         | R  |
| Reliability_Evaluation_Inhibit | BOOLEAN                                    | O8         | R  |
| Min_Pres_Value                 | REAL                                       | O          | R  |
| Max_Pres_Value                 | REAL                                       | O          | R  |
| Resolution                     | REAL                                       | O          | R  |
| Property_List                  | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name                   | CharacterString                            | O          | W  |

1 These properties are required if, and shall be present only if, Present\_Value is commandable.

2 This property is required if, and shall be present only if, the object supports COV reporting.

3 These properties are required if the object supports intrinsic reporting.

4 If Present\_Value is commandable, then it is required to be writable.

This property is required to be writable when Out\_Of\_Service is TRUE.

5 This property, if present, is required to be read-only.

6 These properties shall be present only if the object supports intrinsic reporting.

7 Event\_Algorithm\_Inhibit shall be present if Event\_Algorithm\_Inhibit\_Ref is present.

8 If this property is present, then the Reliability property shall be present.

### Binary Input (3)

| Property Name                  | Datatype                                   | Conf. Code | WA |
|--------------------------------|--------------------------------------------|------------|----|
| Object_Identifier              | BACnetObjectIdentifier                     | R          | R  |
| Object_Name                    | CharacterString                            | R          | R  |
| Object_Type                    | BACnetObjectType                           | R          | R  |
| Present_Value                  | BACnetBinaryPV                             | R1         | R  |
| Description                    | CharacterString                            | O          | W  |
| Device_Type                    | CharacterString                            | O          | R  |
| Status_Flags                   | BACnetStatusFlags                          | R          | R  |
| Event_State                    | BACnetEventState                           | R          | R  |
| Reliability                    | BACnetReliability                          | O          | R  |
| Out_Of_Service                 | BOOLEAN                                    | R          | W  |
| Polarity                       | BACnetPolarity                             | R          | R  |
| Inactive_Text                  | CharacterString                            | O2         | R  |
| Active_Text                    | CharacterString                            | O2         | R  |
| Change_Of_State_Time           | BACnetDateTime                             | O3         | R  |
| Change_Of_State_Count          | Unsigned                                   | O3         | W  |
| Time_Of_State_Count_Reset      | BACnetDateTime                             | O3         | R  |
| Elapsed_Active_Time            | Unsigned32                                 | O4         | W  |
| Time_Of_Active_Time_Reset      | BACnetDateTime                             | O4         | R  |
| Time_Delay                     | Unsigned                                   | O5,7       | W  |
| Notification_Class             | Unsigned                                   | O5,7       | W  |
| Alarm_Value                    | BACnetBinaryPV                             | O5,7       | R  |
| Event_Enable                   | BACnetEventTransitionBits                  | O5,7       | W  |
| Acked_Transitions              | BACnetEventTransitionBits                  | O5,7       | R  |
| Notify_Type                    | BACnetNotifyType                           | O5,7       | R  |
| Event_Time_Stamps              | BACnetARRAY[3] of BACnetTimeStamp          | O5,7       | R  |
| Event_Message_Texts            | BACnetARRAY[3] of CharacterString          | O6,7       | R  |
| Event_Message_Texts_Config     | BACnetARRAY[3] of CharacterString          | O7         | R  |
| Event_Detection_Enable         | BOOLEAN                                    | O5,7       | R  |
| Event_Algorithm_Inhibit_Ref    | BACnetObjectPropertyReference              | O7         | R  |
| Event_Algorithm_Inhibit        | BOOLEAN                                    | O7,8       | R  |
| Time_Delay_Normal              | Unsigned                                   | O7         | R  |
| Reliability_Evaluation_Inhibit | BOOLEAN                                    | O9         | R  |
| Property_List                  | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name                   | CharacterString                            | O          | W  |

- 1 This property is required to be writable when Out\_Of\_Service is TRUE.
- 2 If one of the optional properties Inactive\_Text or Active\_Text is present, then both of these properties shall be present.
- 3 If one of the optional properties Change\_Of\_State\_Time, Change\_Of\_State\_Count, or Time\_Of\_State\_Count\_Reset is present, then all of these properties shall be present.
- 4 If one of the optional properties Elapsed\_Active\_Time or Time\_Of\_Active\_Time\_Reset is present, then both of these properties shall be present.
- 5 These properties are required if the object supports intrinsic reporting.
- 6 This property, if present, is required to be read-only.
- 7 These properties shall be present only if the object supports intrinsic reporting.
- 8 Event\_Algorithm\_Inhibit shall be present if Event\_Algorithm\_Inhibit\_Ref is present.
- 9 If this property is present, then the Reliability property shall be present.

## Binary Output (4)

| Property Name                  | Datatype                                   | Conf. Code | WA |
|--------------------------------|--------------------------------------------|------------|----|
| Object_Identifier              | BACnetObjectIdentifier                     | R          | R  |
| Object_Name                    | CharacterString                            | R          | R  |
| Object_Type                    | BACnetObjectType                           | R          | R  |
| Present_Value                  | BACnetBinaryPV                             | W          | W  |
| Description                    | CharacterString                            | O          | W  |
| Device_Type                    | CharacterString                            | O          | R  |
| Status_Flags                   | BACnetStatusFlags                          | R          | R  |
| Event_State                    | BACnetEventState                           | R          | R  |
| Reliability                    | BACnetReliability                          | O          | R  |
| Out_Of_Service                 | BOOLEAN                                    | R          | W  |
| Polarity                       | BACnetPolarity                             | R          | R  |
| Inactive_Text                  | CharacterString                            | O1         | R  |
| Active_Text                    | CharacterString                            | O1         | R  |
| Change_Of_State_Time           | BACnetDateTime                             | O2         | R  |
| Change_Of_State_Count          | Unsigned                                   | O2         | W  |
| Time_Of_State_Count_Reset      | BACnetDateTime                             | O2         | R  |
| Elapsed_Active_Time            | Unsigned32                                 | O3         | R  |
| Time_Of_Active_Time_Reset      | BACnetDateTime                             | O3         | R  |
| Minimum_Off_Time               | Unsigned32                                 | O          | R  |
| Minimum_On_Time                | Unsigned32                                 | O          | R  |
| Priority_Array                 | BACnetPriorityArray                        | R          | R  |
| Relinquish_Default             | BACnetBinaryPV                             | R          | R  |
| Time_Delay                     | Unsigned                                   | O4,6       | W  |
| Notification_Class             | Unsigned                                   | O4,6       | W  |
| Feedback_Value                 | BACnetBinaryPV                             | O4         | R  |
| Event_Enable                   | BACnetEventTransitionBits                  | O4,6       | W  |
| Acked_Transitions              | BACnetEventTransitionBits                  | O4,6       | R  |
| Notify_Type                    | BACnetNotifyType                           | O4,6       | R  |
| Event_Time_Stamps              | BACnetARRAY[3] of BACnetTimeStamp          | O4,6       | R  |
| Event_Message_Texts            | BACnetARRAY[3] of CharacterString          | O5,6       | R  |
| Event_Message_Texts_Config     | BACnetARRAY[3] of CharacterString          | O6         | R  |
| Event_Detection_Enable         | BOOLEAN                                    | O4,6       | R  |
| Event_Algorithm_Inhibit_Ref    | BACnetObjectPropertyReference              | O6         | R  |
| Event_Algorithm_Inhibit        | BOOLEAN                                    | O6,7       | R  |
| Time_Delay_Normal              | Unsigned                                   | O6         | R  |
| Reliability_Evaluation_Inhibit | BOOLEAN                                    | O8         | R  |
| Property_List                  | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name                   | CharacterString                            | O          | W  |

1 If one of the optional properties Inactive\_Text or Active\_Text is present, then both of these properties shall be present.

2 If one of the optional properties Change\_Of\_State\_Time, Change\_Of\_State\_Count, or Time\_Of\_State\_Count\_Reset is present, then all of these properties shall be present.

3 If one of the optional properties Elapsed\_Active\_Time or Time\_Of\_Active\_Time\_Reset is present, then both of these properties shall be present.

4 These properties are required if the object supports intrinsic reporting.

5 This property, if present, is required to be read-only.

6 These properties shall be present only if the object supports intrinsic reporting.

7 Event\_Algorithm\_Inhibit shall be present if Event\_Algorithm\_Inhibit\_Ref is present.

8 If this property is present, then the Reliability property shall be present.



## Binary Value (5)

| Property Name                  | Datatype                                   | Conf. Code | WA |
|--------------------------------|--------------------------------------------|------------|----|
| Object_Identifier              | BACnetObjectIdentifier                     | R          | R  |
| Object_Name                    | CharacterString                            | R          | R  |
| Object_Type                    | BACnetObjectType                           | R          | R  |
| Present_Value                  | BACnetBinaryPV                             | R1         | W  |
| Description                    | CharacterString                            | O          | W  |
| Status_Flags                   | BACnetStatusFlags                          | R          | R  |
| Event_State                    | BACnetEventState                           | R          | R  |
| Reliability                    | BACnetReliability                          | O          | R  |
| Out_Of_Service                 | BOOLEAN                                    | R          | W  |
| Inactive_Text                  | CharacterString                            | O2         | R  |
| Active_Text                    | CharacterString                            | O2         | R  |
| Change_Of_State_Time           | BACnetDateTime                             | O3         | R  |
| Change_Of_State_Count          | Unsigned32                                 | O3         | W  |
| Time_Of_State_Count_Reset      | BACnetDateTime                             | O3         | R  |
| Elapsed_Active_Time            | Unsigned32                                 | O4         | W  |
| Time_Of_Active_Time_Reset      | BACnetDateTime                             | O4         | R  |
| Minimum_Off_Time               | Unsigned32                                 | O          | R  |
| Minimum_On_Time                | Unsigned32                                 | O          | R  |
| Priority_Array                 | BACnetPriorityArray                        | O5         | R  |
| Relinquish_Default             | BACnetBinaryPV                             | O5         | R  |
| Time_Delay                     | Unsigned                                   | O6,8       | W  |
| Notification_Class             | Unsigned                                   | O6,8       | W  |
| Alarm_Value                    | BACnetBinaryPV                             | O6,8       | R  |
| Event_Enable                   | BACnetEventTransitionBits                  | O6,8       | W  |
| Acked_Transitions              | BACnetEventTransitionBits                  | O6,8       | R  |
| Notify_Type                    | BACnetNotifyType                           | O6,8       | R  |
| Event_Time_Stamps              | BACnetARRAY[3] of BACnetTimeStamp          | O6,8       | R  |
| Event_Message_Texts            | BACnetARRAY[3] of CharacterString          | O7,8       | R  |
| Event_Message_Texts_Config     | BACnetARRAY[3] of CharacterString          | O8         | R  |
| Event_Detection_Enable         | BOOLEAN                                    | O6,8       | R  |
| Event_Algorithm_Inhibit_Ref    | BACnetObjectPropertyReference              | O8         | R  |
| Event_Algorithm_Inhibit        | BOOLEAN                                    | O8,9       | R  |
| Time_Delay_Normal              | Unsigned                                   | O8         | R  |
| Reliability_Evaluation_Inhibit | BOOLEAN                                    | O10        | R  |
| Property_List                  | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name                   | CharacterString                            | O          | W  |

- 1 If Present\_Value is commandable, then it is required to be writable. This property is required to be writable when Out\_Of\_Service is TRUE.
- 2 If one of the optional properties Inactive\_Text or Active\_Text is present, then both of these properties shall be present.
- 3 If one of the optional properties Change\_Of\_State\_Time, Change\_Of\_State\_Count, or Time\_Of\_State\_Count\_Reset is present, then all of these properties shall be present.
- 4 If one of the optional properties Elapsed\_Active\_Time or Time\_Of\_Active\_Time\_Reset is present, then both of these properties shall be present.
- 5 These properties are required if, and shall be present only if, Present\_Value is commandable.
- 6 These properties are required if the object supports intrinsic reporting.
- 7 This property, if present, is required to be read-only.
- 8 These properties shall be present only if the object supports intrinsic reporting.
- 9 Event\_Algorithm\_Inhibit shall be present if Event\_Algorithm\_Inhibit\_Ref is present.
- 10 If this property is present, then the Reliability property shall be present.

## Calendar (6)

| Property Name     | Datatype                                   | Conf. Code | WA |
|-------------------|--------------------------------------------|------------|----|
| Object_Identifier | BACnetObjectIdentifier                     | R          | R  |
| Object_Name       | CharacterString                            | R          | R  |
| Object_Type       | BACnetObjectType                           | R          | R  |
| Description       | CharacterString                            | O          | W  |
| Present_Value     | BOOLEAN                                    | R          | R  |
| Date_List         | BACnetLIST of BACnetCalendarEntry          | R          | W  |
| Property_List     | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name      | CharacterString                            | O          | W  |

## Command (7)

| Property Name         | Datatype                                   | Conf. Code | WA |
|-----------------------|--------------------------------------------|------------|----|
| Object_Identifier     | BACnetObjectIdentifier                     | R          | R  |
| Object_Name           | CharacterString                            | R          | R  |
| Object_Type           | BACnetObjectType                           | R          | R  |
| Description           | CharacterString                            | O          | W  |
| Present_Value         | Unsigned                                   | W          | W  |
| In_Process            | BOOLEAN                                    | R          | R  |
| All_Writes_Successful | BOOLEAN                                    | R          | R  |
| Action                | BACnetARRAY[N] of BACnetActionList         | R          | W  |
| Action_Text           | BACnetARRAY[N] of CharacterString          | O          | W  |
| Property_List         | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name          | CharacterString                            | O          | W  |

## Device (8)

| Property Name                       | Datatype                                   | Conf. Code | WA |
|-------------------------------------|--------------------------------------------|------------|----|
| 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          | W  |
| 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  |
| Structured_Object_List              | BACnetARRAY[N] of BACnetObjectIdentifier   | O          | R  |
| Max_APDU_Length_Accepted            | Unsigned                                   | R          | R  |
| Segmentation_Supported              | BACnetSegmentation                         | R          | R  |
| Max_Segments_Accepted               | Unsigned                                   | O1         | R  |
| VT_Classes_Supported                | BACnetLIST of BACnetVTClass                | O2         | R  |
| Active_VT_Sessions                  | BACnetLIST of BACnetVTSession              | O2         | R  |
| Local_Time                          | Time                                       | O3,4,15    | R  |
| Local_Date                          | Date                                       | O3,4,15    | R  |
| UTC_Offset                          | INTEGER                                    | O4         | R  |
| Daylight_Savings_Status             | BOOLEAN                                    | O4         | R  |
| APDU_Segment_Timeout                | Unsigned                                   | O1         | R  |
| APDU_Timeout                        | Unsigned                                   | R          | R  |
| Number_Of_APDU_Retries              | Unsigned                                   | R          | R  |
| Time_Synchronization_Recipients     | BACnetLIST of BACnetRecipient              | O5         | R  |
| Max_Master                          | Unsigned(1..127)                           | O6         | R  |
| Max_Info_Frames                     | Unsigned                                   | O6         | R  |
| Device_Address_Binding              | BACnetLIST of BACnetAddressBinding         | R          | R  |
| Database_Revision                   | Unsigned                                   | R          | R  |
| Configuration_Files                 | BACnetARRAY[N] of BACnetObjectIdentifier   | O7         | R  |
| Last_Restore_Time                   | BACnetTimeStamp                            | O7         | R  |
| Backup_Failure_Timeout              | Unsigned16                                 | O8         | R  |
| Backup_Preparation_Time             | Unsigned16                                 | O16        | R  |
| Restore_Preparation_Time            | Unsigned16                                 | O16        | R  |
| Restore_Completion_Time             | Unsigned16                                 | O16        | R  |
| Backup_And_Restore_State            | BACnetBackupState                          | O7         | R  |
| Active_COV_Subscriptions            | BACnetLIST of BACnetCOVSubscription        | O9         | R  |
| Slave_Proxy_Enable                  | BACnetARRAY[N] of BOOLEAN                  | O10        | R  |
| Manual_Slave_Address_Binding        | BACnetLIST of BACnetAddressBinding         | O10,12     | R  |
| Auto_Slave_Discovery                | BACnetARRAY[N] of BOOLEAN                  | O10,11     | R  |
| Slave_Address_Binding               | BACnetLIST of BACnetAddressBinding         | O10,12     | R  |
| Last_Restart_Reason                 | BACnetRestartReason                        | O13        | R  |
| Time_Of_Device_Restart              | BACnetTimeStamp                            | O13        | R  |
| Restart_Notification_Recipients     | BACnetLIST of BACnetRecipient              | O17        | R  |
| UTC_Time_Synchronization_Recipients | BACnetLIST of BACnetRecipient              | O5         | R  |
| Time_Synchronization_Interval       | Unsigned                                   | O14        | R  |
| Align_Intervals                     | BOOLEAN                                    | O14        | R  |
| Interval_Offset                     | Unsigned                                   | O14        | R  |
| Serial_Number                       | CharacterString                            | O          | R  |
| Property_List                       | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name                        | CharacterString                            | O          | W  |

... see more →

- 1 These properties are required if, and shall be present only if, segmentation of any kind is supported.
- 2 These properties are required if, and shall be present only if, the VT Services are supported.
- 3 If the device supports the execution of the TimeSynchronization service, then these properties shall be present.

- 4 If the device supports the execution of the UTCTimeSynchronization service, then these properties shall be present.
- 5 If present, this property shall be writable.
- 6 These properties are required if the device is an MS/TP master node.
- 7 These properties are required if, and shall be present only if,  
the device supports execution of the backup and restore procedures.
- 8 This property is required if, and shall be present only if,  
the device supports the backup and restore procedures. If present, this property shall be writable.
- 9 This property is required if, and shall be present only if,  
the device supports execution of either the SubscribeCOV or SubscribeCOVProperty service.
- 10 This property is required if, and shall be present only if, the device is capable of being a Slave-Proxy device.
- 11 This property is required if, and shall be present only if,  
the device is capable of being a Slave-Proxy device that implements automatic discovery of slaves.
- 12 This property shall be writable if the device is directly connected to an MS/TP network.
- 13 These properties are required if the device supports the restart procedure as described in Clause 19.3.
- 14 These properties are required if, and shall be present only if,  
Time\_Synchronization\_Recipients or UTC\_Time\_Synchronization\_Recipients is present.  
If present, these properties shall be writable.
- 15 These properties shall be present if the device is capable of tracking date and time.
- 16 These properties are required if, and shall be present only if,  
the device supports execution of the backup and restore procedures as described in Clause 19.1  
and cannot respond to subsequent communications within the minimum value it will accept in its  
APDU\_Timeout property.
- 17 This property is required if, and shall be present only if,  
the device supports execution of the restart procedure as described in Clause 19.3.

## Event Enrollement (9)

| Property Name                  | Datatype                                   | Conf. Code | WA |
|--------------------------------|--------------------------------------------|------------|----|
| Object_Identifier              | BACnetObjectIdentifier                     | R          | R  |
| Object_Name                    | CharacterString                            | R          | R  |
| Object_Type                    | BACnetObjectType                           | R          | R  |
| Description                    | CharacterString                            | O          | W  |
| Event_Type                     | BACnetEventType                            | R          | R  |
| Notify_Type                    | BACnetNotifyType                           | R          | R  |
| Event_Parameters               | BACnetEventParameter                       | R          | R  |
| Object_Property_Reference      | BACnetDeviceObjectPropertyReference        | R          | R  |
| Event_State                    | BACnetEventState                           | R          | R  |
| Event_Enable                   | BACnetEventTransitionBits                  | R          | W  |
| Acked_Transitions              | BACnetEventTransitionBits                  | R          | R  |
| Notification_Class             | Unsigned                                   | R          | W  |
| Event_Time_Stamps              | BACnetARRAY[3] of BACnetTimeStamp          | R          | R  |
| Event_Message_Texts            | BACnetARRAY[3] of CharacterString          | O1         | R  |
| Event_Message_Texts_Config     | BACnetARRAY[3] of CharacterString          | O          | R  |
| Event_Detection_Enable         | BOOLEAN                                    | R          | R  |
| Event_Algorithm_Inhibit_Ref    | BACnetObjectPropertyReference              | O          | R  |
| Event_Algorithm_Inhibit        | BOOLEAN                                    | O2         | R  |
| Time_Delay_Normal              | Unsigned                                   | O          | R  |
| Status_Flags                   | BACnetStatusFlags                          | R          | R  |
| Reliability                    | BACnetReliability                          | R          | R  |
| Fault_Type                     | BACnetFaultType                            | O3         | R  |
| Fault_Parameters               | BACnetFaultParameter                       | O3         | R  |
| Reliability_Evaluation_Inhibit | BOOLEAN                                    | O          | R  |
| Property_List                  | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name                   | CharacterString                            | O          | W  |

1 This property, if present, is required to be read-only.

2 Event\_Algorithm\_Inhibit shall be present if Event\_Algorithm\_Inhibit\_Ref is

3 These properties are required if, and shall be present only if, the object supports fault algorithms other than NONE.

## File (10)

| Property Name      | Datatype                                   | Conf. Code | WA |
|--------------------|--------------------------------------------|------------|----|
| Object_Identifier  | BACnetObjectIdentifier                     | R          | R  |
| Object_Name        | CharacterString                            | R          | R  |
| Object_Type        | BACnetObjectType                           | R          | R  |
| Description        | CharacterString                            | O          | W  |
| File_Type          | CharacterString                            | R          | R  |
| File_Size          | Unsigned                                   | R1         | R  |
| Modification_Date  | BACnetDateTime                             | R          | R  |
| Archive            | BOOLEAN                                    | W          | W  |
| Read_Only          | BOOLEAN                                    | R          | R  |
| File_Access_Method | BACnetFileAccessMethod                     | R          | R  |
| Record_Count       | Unsigned                                   | O2         | W  |
| Property_List      | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name       | CharacterString                            | O          | W  |

1 If the file size can be changed by writing to the file, and File\_Access\_Method is STREAM\_ACCESS, then this property shall be writable.

2 This property shall be present only if File\_Access\_Method is RECORD\_ACCESS.

If the number of records can be changed by writing to the file, then this property shall be writable.

## Loop (12)

| Property Name                  | Datatype                                   | Conf. Code | WA |
|--------------------------------|--------------------------------------------|------------|----|
| Object_Identifier              | BACnetObjectIdentifier                     | R          | R  |
| Object_Name                    | CharacterString                            | R          | R  |
| Object_Type                    | BACnetObjectType                           | R          | R  |
| Present_Value                  | REAL                                       | R7         | R  |
| Description                    | CharacterString                            | O          | W  |
| Status_Flags                   | BACnetStatusFlags                          | R          | R  |
| Event_State                    | BACnetEventState                           | R          | R  |
| Reliability                    | BACnetReliability                          | O7         | R  |
| Out_Of_Service                 | BOOLEAN                                    | R          | W  |
| Update_Interval                | Unsigned                                   | O          | R  |
| Output_Units                   | BACnetEngineeringUnits                     | R          | R  |
| Manipulated_Variable_Reference | BACnetObjectPropertyReference              | R          | R  |
| Controlled_Variable_Reference  | BACnetObjectPropertyReference              | R          | R  |
| Controlled_Variable_Value      | REAL                                       | R          | R  |
| Controlled_Variable_Units      | BACnetEngineeringUnits                     | R          | R  |
| Setpoint_Reference             | BACnetSetpointReference                    | R          | R  |
| Setpoint                       | REAL                                       | R          | R  |
| Action                         | BACnetAction                               | R          | W  |
| Proportional_Constant          | REAL                                       | O1         | W  |
| Proportional_Constant_Units    | BACnetEngineeringUnits                     | O1         | R  |
| Integral_Constant              | REAL                                       | O2         | W  |
| Integral_Constant_Units        | BACnetEngineeringUnits                     | O2         | R  |
| Derivative_Constant            | REAL                                       | O3         | W  |
| Derivative_Constant_Units      | BACnetEngineeringUnits                     | O3         | R  |
| Bias                           | REAL                                       | O          | W  |
| Maximum_Output                 | REAL                                       | O          | W  |
| Minimum_Output                 | REAL                                       | O          | W  |
| Priority_For_Writing           | Unsigned                                   | R          | R  |
| COV_Increment                  | REAL                                       | O4         | W  |
| Time_Delay                     | Unsigned                                   | O5,8       | W  |
| Notification_Class             | Unsigned                                   | O5,8       | W  |
| Error_Limit                    | REAL                                       | O5,8       | W  |
| Deadband                       | REAL                                       | O5,8       | W  |
| Event_Enable                   | BACnetEventTransitionBits                  | O5,8       | W  |
| Acked_Transitions              | BACnetEventTransitionBits                  | O5,8       | R  |
| Notify_Type                    | BACnetNotifyType                           | O5,8       | R  |
| Event_Time_Stamps              | BACnetARRAY[3] of BACnetTimeStamp          | O5,8       | R  |
| Event_Message_Texts            | BACnetARRAY[3] of CharacterString          | O6,8       | R  |
| Event_Message_Texts_Config     | BACnetARRAY[3] of CharacterString          | O8         | R  |
| Event_Detection_Enable         | BOOLEAN                                    | O5,8       | R  |
| Event_Algorithm_Inhibit_Ref    | BACnetObjectPropertyReference              | O8         | R  |
| Event_Algorithm_Inhibit        | BOOLEAN                                    | O8,9       | R  |
| Time_Delay_Normal              | Unsigned                                   | O8         | R  |
| Reliability_Evaluation_Inhibit | BOOLEAN                                    | O10        | R  |
| Property_List                  | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name                   | CharacterString                            | O          | W  |

- 1 If one of these optional properties is present, then both of these properties shall be present.
- 2 If one of these optional properties is present, then both of these properties shall be present.
- 3 If one of these optional properties is present, then both of these properties shall be present.
- 4 This property is required if, and shall be present only if, the object supports COV reporting.
- 5 These properties are required if the object supports intrinsic reporting.
- 6 This property, if present, is required to be read-only.
- 7 These properties are required to be writable when Out\_Of\_Service is TRUE.
- 8 These properties shall be present only if the object supports intrinsic reporting.
- 9 Event\_Algorithm\_Inhibit shall be present if Event\_Algorithm\_Inhibit\_Ref is present.
- 10 If this property is present, then the Reliability property shall be present.

## Multi State Input (13)

| Property Name                  | Datatype                                   | Conf. Code | WA |
|--------------------------------|--------------------------------------------|------------|----|
| Object_Identifier              | BACnetObjectIdentifier                     | R          | R  |
| Object_Name                    | CharacterString                            | R          | R  |
| Object_Type                    | BACnetObjectType                           | R          | R  |
| Present_Value                  | Unsigned                                   | R1         | R  |
| Description                    | CharacterString                            | O          | W  |
| Device_Type                    | CharacterString                            | O          | R  |
| Status_Flags                   | BACnetStatusFlags                          | R          | R  |
| Event_State                    | BACnetEventState                           | R          | R  |
| Reliability                    | BACnetReliability                          | O          | R  |
| Out_Of_Service                 | BOOLEAN                                    | R          | W  |
| Number_Of_States               | Unsigned                                   | R          | R  |
| State_Text                     | BACnetARRAY[N] of CharacterString          | O          | R  |
| Time_Delay                     | Unsigned                                   | O3,5       | W  |
| Notification_Class             | Unsigned                                   | O3,5       | W  |
| Alarm_Values                   | BACnetLIST of Unsigned                     | O3,5       | R  |
| Fault_Values                   | BACnetLIST of Unsigned                     | O7         | R  |
| Event_Enable                   | BACnetEventTransitionBits                  | O3,5       | W  |
| Acked_Transitions              | BACnetEventTransitionBits                  | O3,5       | R  |
| Notify_Type                    | BACnetNotifyType                           | O3,5       | R  |
| Event_Time_Stamps              | BACnetARRAY[3] of BACnetTimeStamp          | O3,5       | R  |
| Event_Message_Texts            | BACnetARRAY[3] of CharacterString          | O4,5       | R  |
| Event_Message_Texts_Config     | BACnetARRAY[3] of CharacterString          | O5         | R  |
| Event_Detection_Enable         | BOOLEAN                                    | O3,5       | R  |
| Event_Algorithm_Inhibit_Ref    | BACnetObjectPropertyReference              | O5         | R  |
| Event_Algorithm_Inhibit        | BOOLEAN                                    | O5,6       | R  |
| Time_Delay_Normal              | Unsigned                                   | O5         | R  |
| Reliability_Evaluation_Inhibit | BOOLEAN                                    | O7         | R  |
| Property_List                  | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name                   | CharacterString                            | O          | W  |

1 This property is required to be writable when Out\_Of\_Service is TRUE.

2 Footnote removed.

3 These properties are required if the object supports intrinsic reporting.

4 This property, if present, is required to be read-only.

5 These properties shall be present only if the object supports intrinsic reporting.

6 Event\_Algorithm\_Inhibit shall be present if Event\_Algorithm\_Inhibit\_Ref is present.

7 If this property is present, then the Reliability property shall be present.

## Multi State Output (14)

| Property Name                  | Datatype                                   | Conf. Code | WA |
|--------------------------------|--------------------------------------------|------------|----|
| Object_Identifier              | BACnetObjectIdentifier                     | R          | R  |
| Object_Name                    | CharacterString                            | R          | R  |
| Object_Type                    | BACnetObjectType                           | R          | R  |
| Present_Value                  | Unsigned                                   | W          | W  |
| Description                    | CharacterString                            | O          | W  |
| Device_Type                    | CharacterString                            | O          | R  |
| Status_Flags                   | BACnetStatusFlags                          | R          | R  |
| Event_State                    | BACnetEventState                           | R          | R  |
| Reliability                    | BACnetReliability                          | O          | R  |
| Out_Of_Service                 | BOOLEAN                                    | R          | R  |
| Number_Of_States               | Unsigned                                   | R          | R  |
| State_Text                     | BACnetARRAY[N] of CharacterString          | O          | R  |
| Priority_Array                 | BACnetPriorityArray                        | R          | R  |
| Relinquish_Default             | Unsigned                                   | R          | R  |
| Time_Delay                     | Unsigned                                   | O1,3       | W  |
| Notification_Class             | Unsigned                                   | O1,3       | W  |
| Feedback_Value                 | Unsigned                                   | O1         | R  |
| Event_Enable                   | BACnetEventTransitionBits                  | O1,3       | W  |
| Acked_Transitions              | BACnetEventTransitionBits                  | O1,3       | R  |
| Notify_Type                    | BACnetNotifyType                           | O1,3       | R  |
| Event_Time_Stamps              | BACnetARRAY[3] of BACnetTimeStamp          | O1,3       | R  |
| Event_Message_Texts            | BACnetARRAY[3] of CharacterString          | O2,3       | R  |
| Event_Message_Texts_Config     | BACnetARRAY[3] of CharacterString          | O3         | R  |
| Event_Detection_Enable         | BOOLEAN                                    | O1,3       | R  |
| Event_Algorithm_Inhibit_Ref    | BACnetObjectPropertyReference              | O3         | R  |
| Event_Algorithm_Inhibit        | BOOLEAN                                    | O3,4       | R  |
| Time_Delay_Normal              | Unsigned                                   | O3         | R  |
| Reliability_Evaluation_Inhibit | BOOLEAN                                    | O5         | R  |
| Property_List                  | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name                   | CharacterString                            | O          | W  |

1 These properties are required if the object supports intrinsic reporting.

2 This property, if present, is required to be read-only.

3 These properties shall be present only if the object supports intrinsic reporting.

4 Event\_Algorithm\_Inhibit shall be present if Event\_Algorithm\_Inhibit\_Ref is present.

5 If this property is present, then the Reliability property shall be present.



## Multi State Value (19)

| Property Name                  | Datatype                                   | Conf. Code | WA |
|--------------------------------|--------------------------------------------|------------|----|
| Object_Identifier              | BACnetObjectIdentifier                     | R          | R  |
| Object_Name                    | CharacterString                            | R          | R  |
| Object_Type                    | BACnetObjectType                           | R          | R  |
| Present_Value                  | Unsigned                                   | R1         | W  |
| Description                    | CharacterString                            | O          | W  |
| Status_Flags                   | BACnetStatusFlags                          | R          | R  |
| Event_State                    | BACnetEventState                           | R          | R  |
| Reliability                    | BACnetReliability                          | O          | R  |
| Out_Of_Service                 | BOOLEAN                                    | R          | R  |
| Number_Of_States               | Unsigned                                   | R          | R  |
| State_Text                     | BACnetARRAY[N] of CharacterString          | O          | R  |
| Priority_Array                 | BACnetPriorityArray                        | O3         | R  |
| Relinquish_Default             | Unsigned                                   | O3         | R  |
| Time_Delay                     | Unsigned                                   | O4,6       | W  |
| Notification_Class             | Unsigned                                   | O4,6       | W  |
| Alarm_Values                   | BACnetLIST of Unsigned                     | O4,6       | R  |
| Fault_Values                   | BACnetLIST of Unsigned                     | O8         | R  |
| Event_Enable                   | BACnetEventTransitionBits                  | O4,6       | W  |
| Acked_Transitions              | BACnetEventTransitionBits                  | O4,6       | R  |
| Notify_Type                    | BACnetNotifyType                           | O4,6       | R  |
| Event_Time_Stamps              | BACnetARRAY[3] of BACnetTimeStamp          | O4,6       | R  |
| Event_Message_Texts            | BACnetARRAY[3] of CharacterString          | O5,6       | R  |
| Event_Message_Texts_Config     | BACnetARRAY[3] of CharacterString          | O6         | R  |
| Event_Detection_Enable         | BOOLEAN                                    | O4,6       | R  |
| Event_Algorithm_Inhibit_Ref    | BACnetObjectPropertyReference              | O6         | R  |
| Event_Algorithm_Inhibit        | BOOLEAN                                    | O6,7       | R  |
| Time_Delay_Normal              | Unsigned                                   | O6         | R  |
| Reliability_Evaluation_Inhibit | BOOLEAN                                    | O8         | R  |
| Property_List                  | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name                   | CharacterString                            | O          | W  |

- 1 If Present\_Value is commandable, then it is required to be also writable.  
This property is required to be writable when Out\_Of\_Service is TRUE.
- 2 Footnote removed.
- 3 These properties are required if, and shall be present only if, Present\_Value is commandable.
- 4 These properties are required if the object supports intrinsic reporting.
- 5 This property, if present, is required to be read-only.
- 6 These properties shall be present only if the object supports intrinsic reporting.
- 7 Event\_Algorithm\_Inhibit shall be present if Event\_Algorithm\_Inhibit\_Ref is present.
- 8 If this property is present, then the Reliability property shall be present.

## Notification Class (15)

| Property Name      | Datatype                                   | Conf. Code | WA |
|--------------------|--------------------------------------------|------------|----|
| Object_Identifier  | BACnetObjectIdentifier                     | R          | R  |
| Object_Name        | CharacterString                            | R          | R  |
| Object_Type        | BACnetObjectType                           | R          | R  |
| Description        | CharacterString                            | O          | W  |
| Notification_Class | Unsigned                                   | R          | W  |
| Priority           | BACnetARRAY[3] of Unsigned                 | R          | R  |
| Ack_Required       | BACnetEventTransitionBits                  | R          | R  |
| Recipient_List     | BACnetLIST of BACnetDestination            | R          | R  |
| Property_List      | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name       | CharacterString                            | O          | W  |

## Schedule (17)

| Property Name                      | Datatype                                          | Conf. Code | WA |
|------------------------------------|---------------------------------------------------|------------|----|
| Object_Identifier                  | BACnetObjectIdentifier                            | R          | R  |
| Object_Name                        | CharacterString                                   | R          | R  |
| Object_Type                        | BACnetObjectType                                  | R          | R  |
| Present_Value                      | Any                                               | R          | R  |
| Description                        | CharacterString                                   | O          | W  |
| Effective_Period                   | BACnetDateRange                                   | R          | W  |
| Weekly_Schedule                    | BACnetARRAY[7] of BACnetDailySchedule             | O1         | W  |
| Exception_Schedule                 | BACnetARRAY[N] of BACnetSpecialEvent              | O1         | W  |
| Schedule_Default                   | Any                                               | R          | R  |
| List_Of_Object_Property_References | BACnetLIST of BACnetDeviceObjectPropertyReference | R          | R  |
| Priority_For_Writing               | Unsigned(1..16)                                   | R          | R  |
| Status_Flags                       | BACnetStatusFlags                                 | R          | R  |
| Reliability                        | BACnetReliability                                 | R          | R  |
| Out_Of_Service                     | BOOLEAN                                           | R          | W  |
| Event_Detection_Enable             | BOOLEAN                                           | O2,3       | R  |
| Notification_Class                 | Unsigned                                          | O2,3       | W  |
| Event_Enable                       | BACnetEventTransitionBits                         | O2,3       | W  |
| Event_State                        | BACnetEventState                                  | O2,3       | R  |
| Acked_Transitions                  | BACnetEventTransitionBits                         | O2,3       | R  |
| Notify_Type                        | BACnetNotifyType                                  | O2,3       | R  |
| Event_Time_Stamps                  | BACnetARRAY[3] of BACnetTimeStamp                 | O2,3       | R  |
| Event_Message_Texts                | BACnetARRAY[3] of CharacterString                 | O3         | R  |
| Event_Message_Texts_Config         | BACnetARRAY[3] of CharacterString                 | O3         | R  |
| Reliability_Evaluation_Inhibit     | BOOLEAN                                           | O          | R  |
| Property_List                      | BACnetARRAY[N] of BACnetPropertyIdentifier        | R          | R  |
| Profile_Name                       | CharacterString                                   | O          | W  |

1 At least one of these properties is required.

2 These properties are required if the object supports intrinsic reporting.

3 These properties shall be present only if the object supports intrinsic reporting.

## TrendLog (20)

| Property Name                  | Datatype                                   | Conf. Code | WA    |
|--------------------------------|--------------------------------------------|------------|-------|
| Object_Identifier              | BACnetObjectIdentifier                     | R          | R     |
| Object_Name                    | CharacterString                            | R          | R     |
| Object_Type                    | BACnetObjectType                           | R          | R     |
| Description                    | CharacterString                            | O          | W     |
| Enable                         | BOOLEAN                                    | W          | W     |
| Start_Time                     | BACnetDateTime                             | O1,2       | W     |
| Stop_Time                      | BACnetDateTime                             | O1,2       | W     |
| Log_DeviceObjectProperty       | BACnetDeviceObjectPropertyReference        | O8         | W     |
| Log_Interval                   | Unsigned                                   | O1,3       | W     |
| COV_Resubscription_Interval    | Unsigned                                   | O          | W     |
| Client_COV_Increment           | BACnetClientCOV                            | O          | W     |
| Stop_When_Full                 | BOOLEAN                                    | R          | W     |
| Buffer_Size                    | Unsigned32                                 | R          | R     |
| Log_Buffer                     | BACnetLIST of BACnetLogRecord              | R          | R     |
| Record_Count                   | Unsigned32                                 | W          | W     |
| Total_Record_Count             | Unsigned32                                 | R          | R     |
| Logging_Type                   | BACnetLoggingType                          | R          | R     |
| Align_Intervals                | BOOLEAN                                    | O5         | R     |
| Interval_Offset                | Unsigned                                   | O5         | R     |
| Trigger                        | BOOLEAN                                    | O          | R (!) |
| Status_Flags                   | BACnetStatusFlags                          | R          | R     |
| Reliability                    | BACnetReliability                          | O          | R     |
| Notification_Threshold         | Unsigned32                                 | O4,7       | W     |
| Records_Since_Notification     | Unsigned32                                 | O4,7       | R     |
| Last_Notify_Record             | Unsigned32                                 | O4,7       | R     |
| Event_State                    | BACnetEventState                           | R          | R     |
| Notification_Class             | Unsigned                                   | O4,7       | W     |
| Event_Enable                   | BACnetEventTransitionBits                  | O4,7       | W     |
| Acked_Transitions              | BACnetEventTransitionBits                  | O4,7       | R     |
| Notify_Type                    | BACnetNotifyType                           | O4,7       | R     |
| Event_Time_Stamps              | BACnetARRAY[3] of BACnetTimeStamp          | O4,7       | R     |
| Event_Message_Texts            | BACnetARRAY[3] of CharacterString          | O6,7       | R     |
| Event_Message_Texts_Config     | BACnetARRAY[3] of CharacterString          | O7         | R     |
| Event_Detection_Enable         | BOOLEAN                                    | O4,7       | R     |
| Event_Algorithm_Inhibit_Ref    | BACnetObjectPropertyReference              | O7         | R     |
| Event_Algorithm_Inhibit        | BOOLEAN                                    | O7,9       | R     |
| Reliability_Evaluation_Inhibit | BOOLEAN                                    | O10        | R     |
| Property_List                  | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R     |
| Profile_Name                   | CharacterString                            | O          | W     |

1 These properties are required if the monitored property is a BACnet property.

2 If present, these properties are required to be writable.

3 If present, this property is required to be writable when Logging\_Type has the value POLLED or the value COV.

Also, if present this property is required to be read-only if Logging\_Type has the value TRIGGERED.

4 These properties are required if the object supports intrinsic reporting.

5 These properties are required if, and shall be present only if, the object supports clock-aligned logging.

6 This property, if present, is required to be read-only.

7 These properties shall be present only if the object supports intrinsic reporting.

8 This property is required if, and shall be present only if, the monitored property is a BACnet property.

9 Event\_Algorithm\_Inhibit shall be present if Event\_Algorithm\_Inhibit\_Ref is present.

10 If this property is present, then the Reliability property shall be present.

## StructuredView (29)

| Property Name           | Datatype                                      | Conf. Code | WA |
|-------------------------|-----------------------------------------------|------------|----|
| Object_Identifier       | BACnetObjectIdentifier                        | R          | R  |
| Object_Name             | CharacterString                               | R          | R  |
| Object_Type             | BACnetObjectType                              | R          | R  |
| Description             | CharacterString                               | O          | W  |
| Node_Type               | BACnetNodeType                                | R          | R  |
| Node_Subtype            | CharacterString                               | O          | R  |
| Subordinate_List        | BACnetARRAY[N] of BACnetDeviceObjectReference | R          | R  |
| Subordinate_Annotations | BACnetARRAY[N] of CharacterString             | O          | R  |
| Property_List           | BACnetARRAY[N] of BACnetPropertyIdentifier    | R          | R  |
| Profile_Name            | CharacterString                               | O          | W  |

## Large Analog Value (46)

| Property Name                  | Datatype                                   | Conf. Code | WA |
|--------------------------------|--------------------------------------------|------------|----|
| Object_Identifier              | BACnetObjectIdentifier                     | R          | R  |
| Object_Name                    | CharacterString                            | R          | R  |
| Object_Type                    | BACnetObjectType                           | R          | R  |
| Description                    | CharacterString                            | O          | W  |
| Present_Value                  | Double                                     | R1         | W  |
| Status_Flags                   | BACnetStatusFlags                          | R          | R  |
| Event_State                    | BACnetEventState                           | O4         | R  |
| Reliability                    | BACnetReliability                          | O          | R  |
| Out_Of_Service                 | BOOLEAN                                    | O          | R  |
| Units                          | BACnetEngineeringUnits                     | R          | R  |
| Priority_Array                 | BACnetPriorityArray                        | O2         | R  |
| Relinquish_Default             | Double                                     | O2         | R  |
| COV_Increment                  | Double                                     | O3         | W  |
| Time_Delay                     | Unsigned                                   | O4,6       | W  |
| Notification_Class             | Unsigned                                   | O4,6       | W  |
| High_Limit                     | Double                                     | O4,6       | W  |
| Low_Limit                      | Double                                     | O4,6       | W  |
| Deadband                       | Double                                     | O4,6       | W  |
| Limit_Enable                   | BACnetLimitEnable                          | O4,6       | W  |
| Event_Enable                   | BACnetEventTransitionBits                  | O4,6       | W  |
| Acked_Transitions              | BACnetEventTransitionBits                  | O4,6       | R  |
| Notify_Type                    | BACnetNotifyType                           | O4,6       | R  |
| Event_Time_Stamps              | BACnetARRAY[3] of BACnetTimeStamp          | O4,6       | R  |
| Event_Message_Texts            | BACnetARRAY[3] of CharacterString          | O5,6       | R  |
| Event_Message_Texts_Config     | BACnetARRAY[3] of CharacterString          | O6         | R  |
| Event_Detection_Enable         | BOOLEAN                                    | O4,6       | R  |
| Event_Algorithm_Inhibit_Ref    | BACnetObjectPropertyReference              | O6         | R  |
| Event_Algorithm_Inhibit        | BOOLEAN                                    | O6,7       | R  |
| Time_Delay_Normal              | Unsigned                                   | O6         | R  |
| Reliability_Evaluation_Inhibit | BOOLEAN                                    | O8         | R  |
| Min_Pres_Value                 | Double                                     | O          | R  |
| Max_Pres_Value                 | Double                                     | O          | R  |
| Resolution                     | Double                                     | O          | R  |
| Property_List                  | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name                   | CharacterString                            | O          | W  |

1 If Present\_Value is commandable, then it is required to be writable.

This property is required to be writable when Out\_Of\_Service is TRUE.

2 These properties are required if, and shall be present only if, Present\_Value is commandable.

3 This property is required if, and shall be present only if, the object supports COV reporting.

4 These properties are required if the object supports intrinsic reporting.

5 This property, if present, is required to be read-only.

6 These properties shall be present only if the object supports intrinsic reporting.

7 Event\_Algorithm\_Inhibit shall be present if Event\_Algorithm\_Inhibit\_Ref is present.

8 If this property is present, then the Reliability property shall be present.

## Integer Value (45)

| Property Name                  | Datatype                                   | Conf. Code | WA |
|--------------------------------|--------------------------------------------|------------|----|
| Object_Identifier              | BACnetObjectIdentifier                     | R          | R  |
| Object_Name                    | CharacterString                            | R          | R  |
| Object_Type                    | BACnetObjectType                           | R          | R  |
| Description                    | CharacterString                            | O          | W  |
| Present_Value                  | INTEGER                                    | R1         | W  |
| Status_Flags                   | BACnetStatusFlags                          | R          | R  |
| Event_State                    | BACnetEventState                           | O4         | R  |
| Reliability                    | BACnetReliability                          | O          | R  |
| Out_Of_Service                 | BOOLEAN                                    | O          | R  |
| Units                          | BACnetEngineeringUnits                     | R          | R  |
| Priority_Array                 | BACnetPriorityArray                        | O2         | R  |
| Relinquish_Default             | INTEGER                                    | O2         | R  |
| COV_Increment                  | Unsigned                                   | O3         | W  |
| Time_Delay                     | Unsigned                                   | O4,6       | W  |
| Notification_Class             | Unsigned                                   | O4,6       | W  |
| High_Limit                     | INTEGER                                    | O4,6       | W  |
| Low_Limit                      | INTEGER                                    | O4,6       | W  |
| Deadband                       | Unsigned                                   | O4,6       | W  |
| Limit_Enable                   | BACnetLimitEnable                          | O4,6       | W  |
| Event_Enable                   | BACnetEventTransitionBits                  | O4,6       | W  |
| Acked_Transitions              | BACnetEventTransitionBits                  | O4,6       | R  |
| Notify_Type                    | BACnetNotifyType                           | O4,6       | R  |
| Event_Time_Stamps              | BACnetARRAY[3] of BACnetTimeStamp          | O4,6       | R  |
| Event_Message_Texts            | BACnetARRAY[3] of CharacterString          | O5,6       | R  |
| Event_Message_Texts_Config     | BACnetARRAY[3] of CharacterString          | O6         | R  |
| Event_Detection_Enable         | BOOLEAN                                    | O4,6       | R  |
| Event_Algorithm_Inhibit_Ref    | BACnetObjectPropertyReference              | O6         | R  |
| Event_Algorithm_Inhibit        | BOOLEAN                                    | O6,7       | R  |
| Time_Delay_Normal              | Unsigned                                   | O6         | R  |
| Reliability_Evaluation_Inhibit | BOOLEAN                                    | O8         | R  |
| Min_Pres_Value                 | INTEGER                                    | O          | R  |
| Max_Pres_Value                 | INTEGER                                    | O          | R  |
| Resolution                     | INTEGER                                    | O          | R  |
| Property_List                  | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name                   | CharacterString                            | O          | W  |

1 If Present\_Value is commandable, then it is required to be writable.

This property is required to be writable when Out\_Of\_Service is TRUE.

2 These properties are required if, and shall be present only if, Present\_Value is commandable.

3 This property is required if, and shall be present only if, the object supports COV reporting.

4 These properties are required if the object supports intrinsic reporting.

5 This property, if present, is required to be read-only.

6 These properties shall be present only if the object supports intrinsic reporting.

7 Event\_Algorithm\_Inhibit shall be present if Event\_Algorithm\_Inhibit\_Ref is present.

8 If this property is present, then the Reliability property shall be present.

## Positiv Integer Value (48)

| Property Name                  | Datatype                                   | Conf. Code | WA |
|--------------------------------|--------------------------------------------|------------|----|
| Object_Identifier              | BACnetObjectIdentifier                     | R          | R  |
| Object_Name                    | CharacterString                            | R          | R  |
| Object_Type                    | BACnetObjectType                           | R          | R  |
| Description                    | CharacterString                            | O          | W  |
| Present_Value                  | Unsigned                                   | R1         | W  |
| Status_Flags                   | BACnetStatusFlags                          | R          | R  |
| Event_State                    | BACnetEventState                           | O4         | R  |
| Reliability                    | BACnetReliability                          | O          | R  |
| Out_Of_Service                 | BOOLEAN                                    | O          | R  |
| Units                          | BACnetEngineeringUnits                     | R          | R  |
| Priority_Array                 | BACnetPriorityArray                        | O2         | R  |
| Relinquish_Default             | Unsigned                                   | O2         | R  |
| COV_Increment                  | Unsigned                                   | O3         | W  |
| Time_Delay                     | Unsigned                                   | O4,6       | W  |
| Notification_Class             | Unsigned                                   | O4,6       | W  |
| High_Limit                     | Unsigned                                   | O4,6       | W  |
| Low_Limit                      | Unsigned                                   | O4,6       | W  |
| Deadband                       | Unsigned                                   | O4,6       | W  |
| Limit_Enable                   | BACnetLimitEnable                          | O4,6       | W  |
| Event_Enable                   | BACnetEventTransitionBits                  | O4,6       | W  |
| Acked_Transitions              | BACnetEventTransitionBits                  | O4,6       | R  |
| Notify_Type                    | BACnetNotifyType                           | O4,6       | R  |
| Event_Time_Stamps              | BACnetARRAY[3] of BACnetTimeStamp          | O4,6       | R  |
| Event_Message_Texts            | BACnetARRAY[3] of CharacterString          | O5,6       | R  |
| Event_Message_Texts_Config     | BACnetARRAY[3] of CharacterString          | O6         | R  |
| Event_Detection_Enable         | BOOLEAN                                    | O4,6       | R  |
| Event_Algorithm_Inhibit_Ref    | BACnetObjectPropertyReference              | O6         | R  |
| Event_Algorithm_Inhibit        | BOOLEAN                                    | O6,7       | R  |
| Time_Delay_Normal              | Unsigned                                   | O6         | R  |
| Reliability_Evaluation_Inhibit | BOOLEAN                                    | O8         | R  |
| Min_Pres_Value                 | Unsigned                                   | O          | R  |
| Max_Pres_Value                 | Unsigned                                   | O          | R  |
| Resolution                     | Unsigned                                   | O          | R  |
| Property_List                  | BACnetARRAY[N] of BACnetPropertyIdentifier | R          | R  |
| Profile_Name                   | CharacterString                            | O          | W  |

1 If Present\_Value is commandable, then it is required to be writable.

This property is required to be writable when Out\_Of\_Service is TRUE.

2 These properties are required if, and shall be present only if, Present\_Value is commandable.

3 This property is required if, and shall be present only if, the object supports COV reporting.

4 These properties are required if the object supports intrinsic reporting.

5 This property, if present, is required to be read-only.

6 These properties shall be present only if the object supports intrinsic reporting.

7 Event\_Algorithm\_Inhibit shall be present if Event\_Algorithm\_Inhibit\_Ref is present.

8 If this property is present, then the Reliability property shall be present.



### Segmentation Capability:

- X Able to transmit segmented messages      Window Size 16  
X Able to receive segmented messages      Window Size 16

### Data Link Layer Options:

- X BACnet IP, (Annex J)  
X 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) \_\_\_\_\_  
X MS/TP master (Clause 9), baud rate(s): up to 38400  
X MS/TP slave (Clause 9), baud rate(s): up to 38400  
☐ 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      X No

### Networking Options:

- X Router, Clause 6 – List of all routing configurations: IP – IP, IP – MS/TP, MS/TP – MS/TP  
☐ Annex H, BACnet Tunneling Router over IP  
X BACnet/IP Broadcast Management Device (BBMD)

Does the BBMD support registrations by Foreign Devices?      X Yes      ☐ No

Does the BBMD support network address translation?      ☐ Yes      X No

### Network Security Options:

- X 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.

- |                                            |                                               |              |
|--------------------------------------------|-----------------------------------------------|--------------|
| X ISO 10646 (UTF-8)                        | <input type="checkbox"/> IBM™/Microsoft™ DBCS | X ISO 8859-1 |
| <input type="checkbox"/> ISO 10646 (UCS-2) | X ISO 10646 (UCS-4)                           | X JIS X 0208 |

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

\_\_\_\_\_