



# **IntesisBox<sup>®</sup> BACnet Server**

BACnet rev 14 PICS

r1.0 eng

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## 1 Protocol Implementation Conformance Statement

### BACnet Protocol Implementation Conformance Statement (PICS)

**Date:** 2018-05-16

**Vendor Name:** Intesis Software, SLU

**Product Name:** IntesisBox BACnet Server Series

**Product Model Number:** IBOX-BAC-DALI / IBOX-BAC-KNX / IBOX-BAC-MBM / IBOX-BAC-MBUS / SM-ACN-BAC

**Application Software Version:** 1.0.1.0 / 1.0.3.0 / 1.0.3.0 / 1.0.3.0 / 1.0.2.0

**Firmware Revision:** 14.0.1.0

**BACnet Protocol Revision:** 14

#### Product Description:

Provides a BACnet server B-AAC interface that brings connectivity to another BMS network (KNX, Modbus, ...) connected to the device. It provides BACnet/MSTP and BACnet/IP (through Ethernet 10/100) physical layers.

#### 1.1 BACnet Standardized Device Profile (Annex L):

- BACnet Operator Workstation (B-OWS)
- 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)

Additional BACnet Interoperability Building Blocks Supported (Annex K):  
Reference of BIBBs List

#### 1.2 Segmentation Capability:

Segmented request supported  No  Yes Window Size 16 .

Segmented responses supported  No  Yes Window Size 16 .

#### 1.3 Data Link Layer Options:

- BACnet IP, (Annex J)
- BACnet IP, (Annex J), Foreign Device
- ISO 8802-3, Ethernet (Clause 7)
- ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
- ANSI/ATA 878.1, RS-485 ARCNET (Clause 8), baud rate(s) \_\_\_\_\_
- MS/TP master (Clause 9), baud rate(s): 9600, 19200, 38400, 57600, 76800, 115200
- MS/TP slave (Clause 9), baud rate(s): \_\_\_\_\_
- Point-To-Point, EIA 232 (Clause 10), baud rate(s): \_\_\_\_\_
- Point-To-Point, modem, (Clause 10), baud rate(s): \_\_\_\_\_
- LonTalk, (Clause 11), medium: \_\_\_\_\_
- Other: \_\_\_\_\_

## 1.4 Device Address Binding:

Is static device binding supported? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)  Yes  No

## 1.5 Networking Options:

- Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.
- Annex H, BACnet Tunneling Router over IP
- BACnet/IP Broadcast Management Device (BBMD)  
Does the BBMD support registrations by Foreign Devices?  Yes  No

## 1.6 Character Sets Supported

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

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

## 1.7 Gateway

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

**Modbus RTU and TCP**  
**KNX TP-1 networks**  
**Others**

## 2 BACnet Interoperability Building Blocks Supported (BIBBs)

### 2.1 Data Sharing BIBBs

BIBB Type		BACnet Service	Initiate	Execute
DS-RP-B	Data Sharing-ReadProperty-B	ReadProperty	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DS-RPM-B	Data Sharing-ReadPropertyMultiple-B	ReadPropertyMultiple	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DS-WP-B	Data Sharing-WriteProperty-B	WriteProperty	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DS-WPM-B	Data Sharing-WritePropertyMultiple-B	WritePropertyMultiple	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DS-COV-B	Data Sharing-COV-B	SubscribeCOV	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		ConfirmedCOVNotification	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		UnconfirmedCOVNotification	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 2.2 Alarm and Event Management BIBBs

BIBB Type		BACnet Service	Initiate	Execute
AE-N-I-B	Alarm and Event-Notification Internal-B	ConfirmedEventNotification	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		UnconfirmedEventNotification	<input checked="" type="checkbox"/>	<input type="checkbox"/>
AE-ACK-B	Alarm and Event-ACK-B	AcknowledgeAlarm	<input type="checkbox"/>	<input checked="" type="checkbox"/>
AE-ASUM-B	Alarm and Event-Alarm Summary-B	GetAlarmSummary	<input type="checkbox"/>	<input checked="" type="checkbox"/>
AE-INFO-B	Alarm and Event-Information-B	GetEventInformation	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 2.3 Scheduling BIBBs

BIBB Type		BACnet Service	Initiate	Execute
SCHED-I-B	Scheduling-Internal-B			

### 2.4 Trending BIBBs

BIBB Type		BACnet Service	Initiate	Execute
T-VMT-I-B	Trending - Viewing and Modifying Trends Internal-B	ReadRange	<input type="checkbox"/>	<input checked="" type="checkbox"/>
T-VMMV-I-B	Trending - Viewing and Modifying Multiple Values Internal-B	ConfirmedEventNotification	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		ReadRange	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 2.5 Device Management BIBBs

BIBB Type		BACnet Service	Initiate	Execute
DM-DDB-A	Device Management - Dynamic Device Binding-A	Who-Is	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		I-Am	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DM-DDB-B	Device Management - Dynamic Device Binding-B	Who-Is	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		I-Am	<input checked="" type="checkbox"/>	<input type="checkbox"/>
DM-DOB-B	Device Management - Dynamic Object Binding-B	Who-Has	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		I-Have	<input checked="" type="checkbox"/>	<input type="checkbox"/>
DM-DCC-B	Device Management - DeviceCommunicationControl-B	DeviceCommunicationControl	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DM-TS-B	Device Management - TimeSynchronization-B	TimeSynchronization	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DM-RD-B	Device Management - ReinitializeDevice-B	ReinitializeDevice	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 3 Service Types

Service type	Service name	Remarks
Alarm and Event Services	AcknowledgeAlarm	Execute
	ConfirmedCOVNotification	Initiate
	ConfirmedEventNotification	Initiate
	GetAlarmSummary	Execute
	SubscribeCOV	Execute
Object Access Services	ReadProperty	Execute
	ReadPropertyMultiple	Execute
	ReadRange	Execute
	WriteProperty	Execute
	WritePropertyMultiple	Execute
Remote Device Management Services	DeviceCommunicationControl	Execute
	ReinitializeDevice	Execute
Unconfirmed Services	I-Am	Execute / Initiate
	I-Have	Initiate
	UnconfirmedCOVNotification	Initiate
	UnconfirmedEventNotification	Initiate
	TimeSynchronization	Execute
	Who-Has	Execute
	Who-Is	Execute / Initiate
	GetEventInformation	Execute

## 4 Objects

### 4.1 Supported Object Types

The objects supported are shown in the table below.

Object Type	ID
Analog-Input	0
Analog-Output	1
Analog-Value	2
Binary-Input	3
Binary-Output	4
Binary-Value	5
Calendar	6
Device	8
Multistate-Input	13
Multistate-Output	14
Multistate-Value	19
Notification-Class	15
Schedule	17
Trend-Log	20
Trend-Log-Multiple	27

## 4.2 Objects and properties

### 4.2.1 IBOX-BAC-KNX (Device Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Device, 246)	R	W
Object_Name	CharacterString	<i>Configurable through BACnet and Config Tool</i>	R	W
Object_Type	BACnetObjectType	DEVICE (8) (Device Object Type)	R	R
System_Status	BACnetDeviceStatus	OPERATIONAL (0)	R	R
Vendor_Name	CharacterString	"Intesis Software, SLU"	R	R
Vendor_Identifier	Unsigned16	246	R	R
Model_Name	CharacterString	"IBOX-BAC-xxx "	R	R
Firmware_Revision	CharacterString	"14.0.1.0"	R	R
Application_Software_Version	CharacterString	"1.0.2.0"	R	R
Protocol_Version	Unsigned	1	R	R
Protocol_Revision	Unsigned	14	R	R
Protocol_Services_Supported	BACnetServiceSupported	Refer to section 3 [Service Types]	R	R
Protocol_Object_Types_Supported	BACnetObjectTypes Supported	Refer to section 4.1 [Object Types]	R	R
Object_List	BACnetArray[N] of BACnetObjectIdentifier	BACnetARRAY[N]	R	R
Max_APDU_Length_Accepted	Unsigned	480 when MSTP / 1476 when BACnet/IP	R	R
Segmentation_Supported	BACnetSegmentation	SEGMENTED-BOTH (0)	R	R
Max_Segments_accepted	Unsigned	16	O	R
Local_Time	Time	Current time	O	R
Local_Date	Date	Current date	O	R
APDU_Segment_Timeout	Unsigned	3000	R	R
APDU_Timeout	Unsigned	3000	R	R
Number_of_APDU_Retries	Unsigned	3	R	R
UTC_Offset	INTEGER	-	O	R
Daylight_Savings_Status	BOOLEAN	-	O	R
Device_Address_Binding	List of BACnetAddressBinding	NULL (empty)	R	R
Database_Revision	Unsigned	""	R	R



Description	CharacterString	""	O	R
Active_COV_Subscriptions	List of BACnetCOVSubscription	List of BACnetCOVSubscription	O	R
Serial_Number	CharacterString	""	O	R
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	-	R	R
Max_Master * **	Unsigned	127	R	W
Max_Info_Frames *	Unsigned	1	O	R

\* Only available when MSTP is used

\*\* Configurable through the configuration tool.

## 4.2.2 Analog Input Object Type

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, 0)	R	R
Object_Name	CharacterString	<i>Configurable through Config Tool</i>	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	x	R	R
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Units	BACnetEngineeringUnits	<i>Configurable through Config Tool</i>	R	R
COV_Increment	REAL	0	O	W
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	{TRUE, TRUE, TRUE}	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Event_Detection_Enable	BOOLEAN	-	O	R
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	-	R	R

\* Only available when specific object has a Notification Class configured

## 4.2.3 Analog Output Object Type

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Output, 0)	R	R
Object_Name	CharacterString	<i>Configurable through Config Tool</i>	R	R
Object_Type	BACnetObjectType	ANALOG_OUTPUT (1)	R	R
Present_Value	REAL	x	W	W
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Units	BACnetEngineeringUnits	<i>Configurable through Config Tool</i>	R	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	<i>Configurable through BACnet and Config Tool</i>	W	W
COV_Increment	REAL	0	O	W
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	{TRUE, TRUE, TRUE}	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Event_Detection_Enable	BOOLEAN	-	O	R
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	-	R	R

\* Only available when specific object has a Notification Class configured

#### 4.2.4 Analog Value Object Type

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Value, 0)	R	R
Object_Name	CharacterString	<i>Configurable through Config Tool</i>	R	R
Object_Type	BACnetObjectType	ANALOG_VALUE (2)	R	R
Present_Value	REAL	x	R	W
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Units	BACnetEngineeringUnits	<i>Configurable through Config Tool</i>	R	R
COV_Increment	REAL	0	O	W
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	{TRUE, TRUE, TRUE}	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Event_Detection_Enable	BOOLEAN	-	O	R
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	-	R	R

\* Only available when specific object has a Notification Class configured

## 4.2.5 Binary Input Object Type

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Input, 0)	R	R
Object_Name	CharacterString	<i>Configurable through Config Tool</i>	R	R
Object_Type	BACnetObjectType	BINARY_INPUT (3)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	R	R
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	<i>Configurable through Config Tool</i>	O	R
Active_Text	CharacterString	<i>Configurable through Config Tool</i>	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Alarm_Value	BACnetBinaryPV	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Event_Detection_Enable	BOOLEAN	-	O	R
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	-	R	R

\* Only available when specific object has a Notification Class configured

## 4.2.6 Binary Output Object Type

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Output, 0)	R	R
Object_Name	CharacterString	<i>Configurable through Config Tool</i>	R	R
Object_Type	BACnetObjectType	BINARY_OUTPUT (4)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	W	W
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	<i>Configurable through Config Tool</i>	O	R
Active_Text	CharacterString	<i>Configurable through Config Tool</i>	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	BACnetBinaryPV	INACTIVE (0)	R	W
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Event_Enable	BACnetEventTransitionBits	{TRUE, TRUE, TRUE}	O	R*
Feedback_Value	BACnetBinaryPV	-	O	W
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Event_Detection_Enable	BOOLEAN	-	O	R
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	-	R	R

\* Only available when specific object has a Notification Class configured

## 4.2.7 Binary Value Object Type

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Value, 0)	R	R
Object_Name	CharacterString	<i>Configurable through Config Tool</i>	R	R
Object_Type	BACnetObjectType	BINARY_VALUE (5)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	W	W
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Inactive_Text	CharacterString	<i>Configurable through Config Tool</i>	O	R
Active_Text	CharacterString	<i>Configurable through Config Tool</i>	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Alarm_Value	BACnetBinaryPV	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Event_Detection_Enable	BOOLEAN	-	O	R
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	-	R	R

\* Only available when specific object has a Notification Class configured

## 4.2.8 Multistate Input Object Type

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Input, 0)	R	R
Object_Name	CharacterString	<i>Configurable through Config Tool</i>	R	R
Object_Type	BACnetObjectType	MULTISTATE_INPUT (13)	R	R
Present_Value	Unsigned	-	R	R
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	<i>Configurable through Config Tool</i>	R	R
State_Text	BACnetArray[N] of CharacterString	<i>Configurable through Config Tool</i>	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Alarm_Values	List of Unsigned	-	O	R*
Fault_Values	List of Unsigned	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Event_Detection_Enable	BOOLEAN	-	O	R
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	-	R	R

\* Only available when specific object has a Notification Class configured



## 4.2.9 Multistate Output Object Type

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Output, 0)	R	R
Object_Name	CharacterString	<i>Configurable through Config Tool</i>	R	R
Object_Type	BACnetObjectType	MULTISTATE_OUTPUT (14)	R	R
Present_Value	Unsigned	-	W	W
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	<i>Configurable through Config Tool</i>	R	R
State_Text	BACnetArray[N] of CharacterString	<i>Configurable through Config Tool</i>	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	1	W	W
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	Unsigned	-	O	R
Event_Enable	BACnetEventTransitionBits	{TRUE, TRUE, TRUE}	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Event_Detection_Enable	BOOLEAN	-	O	R
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	-	R	R

\* Only available when specific object has a Notification Class configured

## 4.2.10 Multistate Value Object Type

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Output, 0)	R	R
Object_Name	CharacterString	<i>Configurable through Config Tool</i>	R	R
Object_Type	BACnetObjectType	MULTISTATE_VALUE (19)	R	R
Present_Value	Unsigned	-	W	W
Number_Of_States	Unsigned	<i>Configurable through Config Tool</i>	R	R
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
State_Text	BACnetArray[N] of CharacterString	<i>Configurable through Config Tool</i>	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Alarm_Values	Unsigned	-	O	R*
Fault_Values	Unsigned	-	O	R*
Event_Enable	BACnetEventTransitionBits	{TRUE, TRUE, TRUE}	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Event_Detection_Enable	BOOLEAN	-	O	R
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	-	R	R

\* Only available when specific object has a Notification Class configured

### 4.2.11 Notification Class Object Type

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Notification_Class, 1)	R	R
Object_Name	CharacterString	<i>Configurable through Config Tool</i>	R	R
Object_Type	BACnetObjectType	NOTIFICATION_CLASS (15)	R	R
Notification_Class	Unsigned	-	R	R
Priority	BACnetARRAY[3] of Unsigned	{1, 2, 3}	R	R
Ack_Required	BACnetEventTransitionBits	-	R	R
Recipient_List	BACnetLIST of BACnetDestination	-	R	W
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	-	R	R

### 4.2.12 Calendar Object Type

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Calendar, 0)	R	R
Object_Name	CharacterString	<i>Configurable through Config Tool</i>	R	R
Object_Type	BACnetObjectType	CALENDAR (6)	R	R
Present_Value	BOOLEAN	-	R	R
Date_List	BACnetLIST of BACnetCalendarEntry	-	R	W
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	-	R	R

## 4.2.13 Schedule Object Type

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Schedule, 0)	R	R
Object_Name	CharacterString	<i>Configurable through Config Tool</i>	R	R
Object_Type	BACnetObjectType	SCHEDULE (17)	R	R
Present_Value	Any	-	R	R
Effective_Period	BACnetDateRange	-	R	W
Weekly_Schedule	BACnetARRAY[7] of BACnetDailySchedule	-	R	W
Exception_Schedule	BACnetARRAY[N] of BACnetSpecialEvent	-	R	W
Schedule_Default	Any	-	R	W
List_Of_Object_Property_References	BACnetLIST of BACnetDeviceObjectPropertyReference	-	R	R
Priority_For_Writing	Unsigned(1..16)	-	R	W
Status_Flags	BACnetStatusFlags	-	R	R
Reliability	BACnetReliability	-	R	R
Out_Of_Service	BOOLEAN	FALSE	W	W
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	-	R	R

## 4.2.14 Trend Log Object Type

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Trend_Log, 0)	R	R
Object_Name	CharacterString	<i>Configurable through Config Tool</i>	R	R
Object_Type	BACnetObjectType	TREND_LOG (20)	R	R
Enable	BOOLEAN	-	R	W
Start_Time	BACnetDateTime	-	O	W
Stop_Time	BACnetDateTime	-	O	W
Stop_When_Full	BOOLEAN	<i>Configurable through Config Tool</i>	R	R
Buffer_Size	Unsigned	2880	R	R
Log_Buffer	List of BACnetLogRecord	-	R	R
Record_Count	Unsigned	-	R	W
Total_Record_Count	Unsigned	-	R	R
Event_State	BACnetEventState	-	R	R
Logging_Type	BACnetLoggingType	-	R	R
Status_Flags	BACnetStatusFlags	-	R	R
Trigger	BOOLEAN	-		W
Client_COV_Increment	BACnetClientCOV	-	O	W
Log_Device_Object_Property	BACnetDeviceObject PropertyReference	-	O	R
Log_Interval	Unsigned	-	O	W
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	-	R	R

\* Only available when specific object has a Notification Class configured

## 4.2.15 Trend Log Multiple Object Type

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Trend_Log_Multiple, 1)	R	R
Object_Name	CharacterString	<i>Configurable through Config Tool</i>	R	R
Object_Type	BACnetObjectType	TREND_LOG_MULTIPLE (27)	R	R
Enable	BOOLEAN	-	R	W
Start_Time	BACnetDateTime	-	O	W
Stop_Time	BACnetDateTime	-	O	W
Log_Device_Object_Property	BACnetARRAY[10] of BACnetDeviceObjectPropertyReference	-	O	R
Stop_When_Full	BOOLEAN	<i>Configurable through Config Tool</i>	R	R
Buffer_Size	Unsigned	2880	R	R
Log_Buffer	List of BACnetLogRecord	-	R	R
Record_Count	Unsigned	-	R	W
Total_Record_Count	Unsigned	-	R	R
Event_State	BACnetEventState	-	R	R
Logging_Type	BACnetLoggingType	-	R	R
Status_Flags	BACnetStatusFlags	-	R	R
Log_Interval	Unsigned	-	R	W
Trigger	BOOLEAN	-	O	R
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	-	R	R

\* Only available when specific object has a Notification Class configured