

# StruxureWare™ Building Operation

## AS-B PICS



AS-B

- StruxureWare has been designed to strictly comply with the ASHRAE BACnet standard 135-2004.
- BACnet enables integration between Devices designed for a wide variety of applications.
- This Protocol Implementation Conformance Statement (PICS) document details the BACnet Interoperability Building Blocks that are supported in StruxureWare.

### Product Implementation Conformance Statement

Date	09 January 2012
Vendor name	Schneider Electric
Vendor ID	10
Website	<a href="http://www.Schneider-Electric.com/buildings">www.Schneider-Electric.com/buildings</a>
Range name	StruxureWare Building Operation
Product name	Automation Server BACnet
Product model number	AS-B
Application software version	0.0
Firmware revision	1.1
Base ASHRAE standard	135-2004-e,f
BACnet Protocol version	1
BACnet Protocol revision	6

### Product description

The Automation Server is a native BACnet/IP protocol operator workstation and controller with a built-in web server and expandable Input/Output through the use of expansion modules. It has 2 serial ports, one of which may be used to communicate with MS/TP controller devices. The Automation Server also serves as a BACnet protocol router and BACnet/IP Broadcast Management Device (BBMD). It performs BACnet routing functions among attached MS/TP networks.

Note: Requires StruxureWare Workstation P/N SW-STATION for user interface.

## Device Profile Support

Controller Profile:

BACnet Building Controller (B-BC)	X
BACnet Advanced Application Controller (B-AAC)	
BACnet Application Specific Controller (B-ASC)	
BACnet Smart Actuator (B-SA)	
BACnet Smart Sensor (B-SS)	

Operator Profile:

BACnet Advanced Operator Workstation (B-AWS)	
BACnet Operator Workstation (B-OWS)	X
BACnet Operator Display (B-OD)	

## Segmentation Capability

Segmentation	Supported	Window Size
Able to transmit segmented messages	X	1
Able to receive segmented messages	X	1

## Data Link Layer and Routing Options

Data Link	Supported	Data Rates	Router for Data Link
BACnet/IP	X	10/100 Mbit/s	X
Ethernet - ISO 8802_3			
MS/TP master	X	9600, 19200, 38400, 76800 Kbit/s	X
MS/TP slave			
Zigbee			
ARCnet - ANSI/ATA 878.1			
RS-485 ANSI/ATA 878.1			
LonTalk TP/FT - 10			
LonTalk/IP			
Point-to-Point EIA 232			
Point-to-Point - modem			

## Other Networking Options

Networking Option	Supported
Static Device Binding Supported	
Annex H, BACnet Tunneling Router over IP	
BACnet Broadcast Management Device (BBMD)	X
BBMD supports registration by foreign device	X
Device support registration as foreign device	X

## Character Sets Supported

Character Sets	Supported
ANSI X3.4	X
ISO 8859-1	X
ISO 10646 (USC-2)	X
ISO 10646 (UCS-4)	X
IBM/Microsoft DBCS	
JIS C 6226	

# BACnet Interoperability Building Blocks (BIBBs) Support

## Data Sharing

BIBB	Description	BACnet Standard								Product Conformance
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	
DS-RP-A	ReadProperty-A	x	x	x	x					x
DS-RP-B	ReadProperty-B	x	x	x	x	x	x	x	x	x
DS-RPM-A	ReadPropertyMultiple-A	x	x		x					x
DS-RPM-B	ReadPropertyMultiple-B				x	x				x
DS-RPC-A	ReadPropertyConditional-A									
DS-RPC-B	ReadPropertyConditional-B									x
DS-WP-A	WriteProperty-A	x	x	x	x					x
DS-WP-B	WriteProperty-B				x	x	x	x		x
DS-WPM-A	WritePropertyMultiple-A	x	x							x
DS-WPM-B	WritePropertyMultiple-B				x	x				x
DS-COV-A	COV-A									x
DS-COV-B	COV-B									x
DS-COVP-A	COVP-A									
DS-COVP-B	COVP-B									
DS-COVU-A	COV-Unsolicited-A									
DS-COVU-B	COV-Unsolicited-B									
DS-V-A	View-A		x	x						x
DS-M-A	Modify-A		x	x						x
DS-AV-A	Advanced View-A	x								
DS-AM-A	Advanced Modify-A	x								

# BACnet Interoperability Building Blocks (BIBBs) Support

## Alarms and Events

BIBB	Description	BACnet Standard								Product Conformance
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	
AE-N-A	Notification-A	x	x							x
AE-N-I-B	Notification Internal-B				x	x				x
AE-N-E-B	Notification External-B									
AE-ACK-A	ACK-A	x	x							x
AE-ACK-B	ACK-B				x	x				x
AE-ASUM-A	Summary-A									x
AE-ASUM-B	Alarm Summary-B									
AE-ESUM-A	Enrollment Summary-A									x
AE-ESUM-B	Enrollment Summary-B				x					x
AE-INFO-A	Information-A									x
AE-INFO-B	Information-B				x	x				x
AE-LS-A	LifeSafety-A									
AE-LS-B	LifeSafety-B									
AE-AS-A	Alarm Summary-A	x	x							x
AE-VN-A	View Notification-A		x	x						x
AE-VM-A	View Modify-A		x							x
AE-AVM-A	Advanced View Modify-A	x								
AE-AVN-A	Advanced View Notifications-A	x								
AE-ELVM-A	Event Log View and Modify-A	x <sup>1</sup>								

<sup>1</sup> Not required for devices claiming conformance to a protocol revision less than 7.

# BACnet Interoperability Building Blocks (BIBBs) Support

## Schedules

BIBB	Description	BACnet Standard							Product Conformance
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	
SCHED-A	Scheduling-A								
SCHED-B	Scheduling-B								
SCHED-I-B	Scheduling - Internal-B					x			x
SCHED-E-B	Scheduling - External-B				x				x
SCH-VM-A	Scheduling - View Modify		x						x
SCH-AVM-A	Scheduling - Advanced View Modify	x							
SCH-WS-A	Scheduling - Weekly Schedule-A								
SCH-WS-I-B	Scheduling Weekly Schedule Internal-B								
SCH-R-B	Scheduling - Readable-B								

## Trends

BIBB	Description	BACnet Standard							Product Conformance
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	
T-VMT-A	Viewing and Modifying Trends-A								
T-VMT-I-B	Viewing and Modifying Trends Internal-B				x				x
T-VMT-E-B	Viewing and Modifying Trends External-B								x
T-ATR-A	Automated Trend Retrieval-A								x
T-ATR-B	Automated Trend Retrieval-B				x				x
T-V-A	View-A		x						x
T-A-A	Archiving-A								
T-AVM-A	Advanced View and Modify-A	x							x

# BACnet Interoperability Building Blocks (BIBBs) Support

## Device Management

BIBB	Description	BACnet Standard								Product Conformance
		B-AWS	B-OVS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	
DM-DDB-A	Dynamic Device Binding-A	x	x	x	x					x
DM-DDB-B	Dynamic Device Binding-B	x	x	x	x	x	x	x <sup>1</sup>	x <sup>1</sup>	x
DM-DOB-A	Dynamic Object Binding-A									
DM-DOB-B	Dynamic Object Binding-B	x	x	x	x	x	x	x <sup>1</sup>	x <sup>1</sup>	x
DM-DCC-A	DeviceCommunication Control-A	x								x
DM-DCC-B	DeviceCommunication Control-B				x	x	x			x
DM-PT-A	Private Transfer-A									
DM-PT-B	Private Transfer-B									
DM-TM-A	Text Message-A									
DM-TM-B	Text Message-B									
DM-TS-A	TimeSynchronization-A									x
DM-TS-B	TimeSynchronization-B				x	x	x			x
DM-UTC-A	UTCTimeSynchronization-A									x
DM-UTC-B	UTCTimeSynchronization-B				x	x				x
DM-RD-A	ReinitializeDevice-A	x								x
DM-RD-B	ReinitializeDevice-B				x	x	x			x
DM-BR-A	Backup and Restore-A	x								x
DM-BR-B	Backup and Restore-B				x					x
DM-R-A	Restart-A									
DM-R-B	Restart-B									
DM-LM-A	List Manipulation-A									
DM-LM-B	List Manipulation-B									
DM-OCD-A	Object Creation and Deletion-A	x								x
DM-OCD-B	Object Creation and Deletion-B									x

## BACnet Interoperability Building Blocks (BIBBs) Support

### Device Management (continued)

BIBB	Description	BACnet Standard							Product Conformance	
		B-AWS	B-OVS	B-OD	B-BC	B-AAC	B-ASC	B-SA		B-SS
DM-VT-A	Virtual Terminal-A									
DM-VT-B	Virtual Terminal-B									
DM-ANM-A	Automatic Network Mapping-A	x								x
DM-ADM-A	Automatic Device Mapping-A	x								x
DM-MTS-A	Manual Time Synchronization-A	x	x							x

<sup>1</sup> Not required if the device is a BACnet MS/TP Slave.

## BACnet Interoperability Building Blocks (BIBBs) Support

### Network Management

BIBB	Description	BACnet Standard								Product Conformance
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	
NM-CE-A	Connection Establishment-A	x			x					x
NM-CE-B	Connection Establishment-B									
NM-RC-A	Router Configuration-A									
NM-RC-B	Router Configuration-B									x

## Supported BACnet Object Types

ID	Description	BACnet Standard								Product Conformance		
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	Supported	Creatable	Deletable
23	Accumulator	x	x							PO	PO	PO
0	Analog Input	x	x							x	PO	PO
1	Analog Output	x	x							x	PO	PO
2	Analog Value	x	x							x	x	x
18	Averaging	x	x							PO	PO	PO
3	Binary Input	x	x							x	PO	PO
4	Binary Output	x	x							x	PO	PO
5	Binary Value	x	x							x	x	x
6	Calendar	x	x							x	x	x
7	Command	x	x							PO	PO	PO
8	Device	x	x	x	x	x	x	x	x	x		
9	Event Enrollment	x	x							x	x	x
10	File	x								x	PO	PO
11	Group	x										
21	Life Safety Point											
22	Life Safety Zone											
12	Loop	x	x							x	x	x
13	Multi-state Input	x	x							x	PO	PO
14	Multi-state Output	x	x							x	PO	PO
19	Multi-state Value	x	x							x	x	x
15	Notification Class	x	x							x	x	x
16	Program	x	x							x	PO	PO
24	Pulse Converter	x	x							PO	PO	PO
17	Schedule	x	x							x	x	x
20	Trend Log	x	x							x	x	x
30	Access Door	x										
25	Event Log	x										
28	Load Control	x	x							PO	PO	PO
29	Structured View	x										
27	Trend Log Multiple	x										
32	Access Credential	x										

## Supported BACnet Object Types (continued)

ID	Description	BACnet Standard							Product Conformance			
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	Supported	Creatable	Deletable
33	Access Point	x										
34	Access Rights	x										
35	Access User	x										
36	Access Zone	x										
37	Credential Data Input	x										
26	Global Group	x										

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Accumulator

BACnet Standard Accumulator					StruxureWare Device Accumulator (proxy)		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	PO	
77	object-name	R			BACnet name	PO	PO
79	object-type	R			BACnet type	PO	
85	present-value	R <sup>1</sup>			Value	PO	PO
28	description			O	Description	PO	PO
31	device-type			O	Device type	PO	PO
111	status-flags	R			Status flags	PO	
36	event-state	R			Event state	PO	
103	reliability			O	Reliability	PO	
81	out-of-service	R			Out of service	PO	PO
186	scale	R					
117	units	R					
188	prescale			O			
65	max-pres-value	R			Maximum value	PO	PO
192	value-change-time			O <sup>2</sup>	Value change time	PO	
190	value-before-change			O <sup>2,3</sup>	Value before change	PO	PO
191	value-set			O <sup>2,3</sup>	Value set	PO	PO
184	logging-record			O			
183	logging-object			O			
186	pulse-rate			O <sup>1,4</sup>	Pulse rate	PO	PO
45	high-limit			O <sup>4</sup>	Upper limit	PO	PO
59	low-limit			O <sup>4</sup>	Lower limit	PO	PO
182	limit-monitoring-interval			O <sup>4</sup>	Limit Monitoring interval	PO	PO
17	notification-class			O <sup>4</sup>	BACnet notification	PO	PO
113	time-delay			O <sup>4</sup>	Time delay	PO	PO
52	limit-enable			O <sup>4</sup>	Limit enable	PO	PO
35	event-enable			O <sup>4</sup>	Event enable	PO	PO

## Accumulator

BACnet Standard Accumulator					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
0	acked-transitions			O <sup>4</sup>	Acknowledged transitions	PO	
72	notify-type			O <sup>4</sup>	Notify type	PO	PO
130	event-time-stamps			O	To-off-normal time To-fault time To-normal time	PO	
168	profile-name			O	Profile name	PO	

<sup>1</sup> This property is required to be writable when out-of-service is TRUE.

<sup>2</sup> These properties are required if either Value\_Before\_Change or Value\_Set is writable.

<sup>3</sup> Either Value\_Before\_Change or Value\_Set may be writable, but not both.

<sup>4</sup> These properties are required if the object supports intrinsic reporting.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Analog Input

BACnet Standard					StruxureWare Device		
Analog Input					BACnet Analog Input		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R <sup>1</sup>			Value	R	W
28	description			O	Description	R	W
31	device-type			O	Device type	PO	PO
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	PO	
81	out-of-service	R			Out of service	R	W
118	update-interval			O	Update interval	PO	PO
117	units	R			Unit	R	W
69	min-pres-value			O	Minimum value	PO	PO
65	max-pres-value			O	Maximum value	PO	PO
106	resolution			O	Resolution	PO	PO
22	cov-increment			O <sup>2</sup>	COV increment	R	W
113	time-delay			O <sup>3</sup>	Time delay	R	W
17	notification-class			O <sup>3</sup>	BACnet notification	R	W
45	high-limit			O <sup>3</sup>	Upper limit	R	W
59	low-limit			O <sup>3</sup>	Lower limit	R	W
25	deadband			O <sup>3</sup>	Deadband	R	W
52	limit-enable			O <sup>3</sup>	Limit enable	R	W
35	event-enable			O <sup>3</sup>	Event enable	R	W
0	acked-transitions			O <sup>3</sup>	Acknowledged transitions	R	
168	notify-type			O <sup>3</sup>	Notify type	R	W
130	event-time-stamps			O <sup>3</sup>	To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile name	PO	

<sup>1</sup> This property is required to be writable when out-of-service is TRUE.

<sup>2</sup> This property is required if the object supports COV reporting.

<sup>3</sup> These properties are required if the object supports intrinsic reporting.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Analog Output

BACnet Standard Analog Output					StruxureWare Device BACnet Analog Output		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R	W		Value	R	W
28	description			O	Description	R	W
31	device-type			O	Device type	PO	PO
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	PO	
81	out-of-service	R			Out of service	R	W
117	units	R			Unit	R	W
69	min-pres-value			O	Minimum value	PO	PO
65	max-pres-value			O	Maximim value	PO	PO
106	resolution			O	Resolution	PO	PO
87	priority-array	R			Command Priority Levels	R	
104	relinquish-default	R			Relinquish default	R	W
22	cov-increment			O <sup>1</sup>	COV increment	R	W
113	time-delay			O <sup>2</sup>	Time delay	R	W
17	notification-class			O <sup>2</sup>	BACnet notification	R	W
45	high-limit			O <sup>2</sup>	Upper limit	R	W
59	low-limit			O <sup>2</sup>	Lower limit	R	W
25	deadband			O <sup>2</sup>	Deadband	R	W
52	limit-enable			O <sup>2</sup>	Limit enable	R	W
35	event-enable			O <sup>2</sup>	Event enable	R	W
0	acked-transitions			O <sup>2</sup>	Acknowledged transitions	R	
72	notify-type			O <sup>2</sup>	Notify type	R	W
130	event-time-stamps			O <sup>2</sup>	To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile name	PO	

<sup>1</sup>This property is required if the object supports COV reporting.

<sup>2</sup>These properties are required if the object supports intrinsic reporting.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Analog Value

BACnet Standard					StruxureWare Device		
Analog Value					BACnet Analog Value		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R <sup>4</sup>			Value	R	W
28	description			O	Description	R	W
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	PO	
81	out-of-service	R			Out of service	R	W
117	units	R			Unit	R	W
87	priority-array	R		O <sup>1</sup>	Command Priority Levels	R	
104	relinquish-default			O <sup>1</sup>	Relinquish default	R	W
22	cov-increment			O <sup>2</sup>	COV increment	R	W
113	time-delay			O <sup>3</sup>	Time delay	R	W
17	notification-class			O <sup>3</sup>	BACnet notification	R	W
45	high-limit			O <sup>3</sup>	Upper limit	R	W
59	low-limit			O <sup>3</sup>	Lower limit	R	W
25	deadband			O <sup>3</sup>	Deadband	R	W
52	limit-enable			O <sup>3</sup>	Limit enable	R	W
35	event-enable			O <sup>3</sup>	Event enable	R	W
0	acked-transitions			O <sup>3</sup>	Acknowledged transitions	R	
72	notify-type			O <sup>3</sup>	Notify type	R	W
130	event-time-stamps			O <sup>3</sup>	To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile name	PO	

<sup>1</sup> If present-value is commandable, then both of these properties shall be present.

<sup>2</sup> This property is required if the object supports COV reporting.

<sup>3</sup> These properties are required if the object supports intrinsic reporting.

<sup>4</sup> 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.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Averaging

BACnet Standard					StruxureWare Device		
Averaging					Averaging (proxy)		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	PO	
77	object-name	R			BACnet name	PO	PO
79	object-type	R			BACnet type	PO	
136	minimum-value	R			Minimum value	PO	
150	minimum-value-timestamp			O	Minimum value timestamp	PO	
125	average-value	R			Average value	PO	
151	variance-value			O	Variance value	PO	
135	maximum-value	R			Maximum value	PO	
149	maximum-value-timestamp			O	Maximum value timestamp	PO	
28	description			O	Description	PO	PO
124	attempted-samples	R	W <sup>1</sup>		Attempted samples	PO	PO
146	valid-samples	R			Valid samples	PO	
78	object-property-reference	R <sup>1</sup>			Object property reference	PO	PO
147	window-interval		W <sup>1</sup>		Window interval	PO	PO
148	window-samples		W <sup>1</sup>		Window samples	PO	PO
168	profile-name			O	Profile name	PO	

<sup>1</sup> If any of these properties are written to using BACnet services, all of the buffer samples become invalid. In addition, Attempted\_Samples becomes zero, Valid\_Samples becomes zero, Minimum\_Value becomes INF, Average\_Value becomes NaN, and Maximum\_Value becomes INF.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Binary Input

BACnet Standard					StruxureWare Device		
Binary Input					BACnet Digital Input		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R <sup>1</sup>			Value	R	W
28	description			O	Description	R	W
31	device-type			O	Device type	PO	PO
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	PO	
81	out-of-service	R			Out of service	R	W
84	polarity	R			Polarity	R	W
46	inactive-text			O <sup>2</sup>	Inactive text	R	W
4	active-text			O <sup>2</sup>	Active text	R	W
16	change-of-state-time			O <sup>3</sup>	Change of state time	PO	
15	change-of-state-count			O <sup>3</sup>	Change of state count	PO	PO
115	time-of-state-count-reset			O <sup>3</sup>	Time of state count reset	PO	
33	elapsed-active-time			O <sup>4</sup>	Elapsed active time	PO	PO
114	time-of-active-time-reset			O <sup>4</sup>	Time of active time reset	PO	

## Binary Input (continued)

BACnet Standard					StruxureWare Device		
Binary Input					BACnet Digital Input		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
113	time-delay			O <sup>5</sup>	Time delay	R	W
17	notification-class			O <sup>5</sup>	BACnet notification	R	W
6	alarm-value			O <sup>5</sup>	Alarm value	R	W
35	event-enable			O <sup>5</sup>	Event enable	R	W
0	acked-transitions			O <sup>5</sup>	Acknowledged transitions	R	
72	notify-type			O <sup>5</sup>	Notify type	R	W
130	event-time-stamps			O <sup>5</sup>	To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile name	PO	

<sup>1</sup> This property is required to be writable when out-of-service is TRUE.

<sup>2</sup> If either optional property, inactive-text or active-text, is present, then both properties shall be present.

<sup>3</sup> 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.

<sup>4</sup> If either optional property, elapsed-active-time or time-of-active-time-reset, is present, then both of these properties shall be present.

<sup>5</sup> These properties are required if the object supports intrinsic reporting.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Binary Output

BACnet Standard					StruxureWare Device		
Binary Output					BACnet Digital Output		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value		W		Value	R	W
28	description			O	Description	R	W
31	device-type			O	Device type	PO	PO
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	PO	
81	out-of-service	R			Out of service	R	W
84	polarity	R			Polarity	R	W
46	inactive-text			O <sup>1</sup>	Inactive text	R	W
4	active-text			O <sup>1</sup>	Active text	R	W
16	change-of-state-time			O <sup>2</sup>	Change of state time	PO	
15	change-of-state-count			O <sup>2</sup>	Change of state count	PO	PO
115	time-of-state-count-reset			O <sup>2</sup>	Time of state count reset	PO	
33	elapsed-active-time			O <sup>3</sup>	Elapsed active time	PO	PO
114	time-of-active-time-reset			O <sup>3</sup>	Time of active time reset	PO	
66	minimum-off-time			O	Minimum off time	PO	PO
67	minimum-on-time			O	Minimum on time	PO	PO
87	priority-array	R			Command Priority Levels	R	
104	relinquish-default	R			Relinquish default	R	W

**Binary Output (continued)**

BACnet Standard					StruxureWare Device		
Binary Output					BACnet Digital Output		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
113	time-delay			O <sup>4</sup>	Time delay	PO	PO
17	notification-class			O <sup>4</sup>	BACnet notification	PO	PO
6	alarm-value			O <sup>4</sup>	Alarm value	PO	PO
35	event-enable			O <sup>4</sup>	Event enable	PO	PO
0	acked-transitions			O <sup>4</sup>	Acknowledged transitions	PO	
72	notify-type			O <sup>4</sup>	Notify type	PO	PO
130	event-time-stamps			O <sup>4</sup>	To-off-normal time To-fault time To-normal time	PO	
168	profile-name			O	Profile name	PO	

<sup>1</sup> If either optional property, inactive-text or active-text, is present, then both properties shall be present.

<sup>2</sup> 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.

<sup>3</sup> If either optional property, elapsed-active-time or time-of-active-time-reset, is present, then both of these properties shall be present.

<sup>4</sup> These properties are required if the object supports intrinsic reporting.

**Note:** PO indicates “Proxy Only,” which means that the object is only supported by Workstation.

## Binary Value

BACnet Standard					StruxureWare Device		
Binary Value					BACnet Digital Value		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R <sup>1</sup>			Value	R	W
28	description			O	Description	R	W
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	PO	
81	out-of-service	R			Out of service	R	W
46	inactive-text			O <sup>2</sup>	Inactive text	R	W
4	active-text			O <sup>2</sup>	Active text	R	W
16	change-of-state-time			O <sup>3</sup>	Change of state time	PO	
15	change-of-state-count			O <sup>3</sup>	Change of state count	PO	PO
115	time-of-state-count-reset			O <sup>3</sup>	Time of state count reset	PO	
33	elapsed-active-time			O <sup>4</sup>	Elapsed active time	PO	PO
114	time-of-active-time-reset			O <sup>4</sup>	Time of active time reset	PO	
66	minimum-off-time			O	Minimum off time	PO	PO
67	minimum-on-time			O	Minimum on time	PO	PO
87	priority-array			O <sup>5</sup>	Command Priority Levels	R	
104	relinquish-default			O <sup>5</sup>	Relinquish default	R	W
113	time-delay			O <sup>6</sup>	Time delay	R	W
17	notification-class			O <sup>6</sup>	BACnet notification	R	W
6	alarm-value			O <sup>6</sup>	Alarm value	R	W
35	event-enable			O <sup>6</sup>	Event enable	R	W
0	acked-transitions			O <sup>6</sup>	Acknowledged transitions	R	

**Binary Value (continued)**

BACnet Standard					StruxureWare Device		
Binary Value					BACnet Digital Value		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
72	notify-type			O <sup>6</sup>	Notify type	R	W
130	event-time-stamps			O <sup>6</sup>	To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile time	PO	

<sup>1</sup> 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.

<sup>2</sup> If either optional property, inactive-text or active-text, is present, then both properties shall be present.

<sup>3</sup> 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.

<sup>4</sup> If either optional property, elapsed-active-time or time-of-active-time-reset, is present, then both of these properties shall be present.

<sup>5</sup> If present-value is commandable, then both of these properties shall be present.

<sup>6</sup> These properties are required if the object supports intrinsic reporting.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Calendar

BACnet Standard					StruxureWare Device		
Calendar					BACnet Calendar		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
28	description			O	Description	R	W
85	present-value	R			Value	R	
23	date-list	R			Date list	R	W
168	profile-name			O	Profile name	PO	

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Command

BACnet Standard					StruxureWare Device		
Command							
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	PO	
77	object-name	R			BACnet name	PO	PO
79	object-type	R			BACnet type	PO	
28	description			O	Description	PO	PO
85	present-value		W		Value	PO	PO
47	in-process	R			In process	PO	
9	all-writes-successful	R			All writes successful	PO	
2	action	R					
3	action-text			O			
168	profile-name			O	Profile name	PO	

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

Device

BACnet Standard					StruxureWare Device		
Device					BACnet Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
112	system-status	R			System status	R	
121	vendor-name	R			Vendor name	R	
120	vendor-identifier	R			Vendor identifier	R	
70	model-name	R			Model name	R	
44	firmware-revision	R			Firmware revision	R	
12	application-software-version	R			Application software version	R	
58	location			O	Location	R	W
28	description			O	Description	R	W
98	protocol-version	R			Protocol version	R	
139	protocol-revision	R			Protocol revision	R	
97	protocol-services-supported	R			Services supported	R	
96	protocol-object-types-supported	R			Object types supported	R	
76	object-list	R			View objects in Application folder	R	
209	structured-object-list			O			
62	max-apdu-length-accepted	R			Maximum APDU length accepted	R	
107	segmentation-supported	R			Segmentation supported	R	
10	apdu-segment-timeout			O <sup>1</sup>	APDU segment timeout	R	W
122	vt-classes-supported			O <sup>2</sup>			
5	active-vt-sessions			O <sup>2</sup>			
57	local-time			O <sup>3, 4</sup>	Local time	R	
56	local-date			O <sup>3, 4</sup>	Local date	R	
119	utc-offset			O <sup>4</sup>	UTC offset (min)	R	
24	daylight-savings-status			O <sup>4</sup>	Daylight savings	R	

Device (continued)

BACnet Standard					StruxureWare Device		
Device					BACnet Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
11	apdu-timeout	R			APDU timeout	R	W
73	number-of-apdu-retries	R			Number of APDU retries	R	W
55	list-of-session-keys			O			
116	time-synchronization- recipients			O <sup>5</sup>	Time synchronization recipients	R	W
64	max-master			O <sup>6</sup>	Maximum master	R	W
63	max-info-frames			O <sup>6</sup>	Maximum information frames	R	W
30	device-address- binding	R			View properties of bound devices in Hardware folder.	R	
155	database-revision	R			Database revision	R	
154	configuration-files			O <sup>7</sup>	Backup configuration files	R	
157	last-restore-time			O <sup>7</sup>	Last restore time	R	
153	backup-failure- timeout			O <sup>8</sup>	Backup failure timeout	R	W
152	active-cov- subscriptions			O <sup>9</sup>			
167	max-segments- accepted			O <sup>1</sup>	Maximum segments accepted	R	
172	slave-proxy-enable			O <sup>10</sup>			
169	auto-slave-discovery			O <sup>11</sup>			
171	slave-address- binding			O <sup>12</sup>			
170	manual-slave- address-binding			O <sup>10</sup>			
168	profile-name			O	Profile name	R	
196	last-restart-session						
203	time-of-device-restart			O			
202	restart-notification- recipients			O			
206	utc-time-synchroniza- tion-recipients			O <sup>5</sup>			
204	time-synchronization- interval			O			
193	align-intervals			O			

**Device (continued)**

BACnet Standard					StruxureWare Device		
Device					BACnet Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
195	interval-offset			O			
515	proprietary-property-515				Serial number	R	
517	proprietary-property-517				Infinity path	R	

<sup>1</sup> Required if segmentation of any kind is supported.  
<sup>2</sup> If one of the properties, VT\_Classes\_Supported or Active\_VT\_Sessions, is present, then both of these properties shall be present. Both properties are required if support for VT\_Services is indicated in the PICS.  
<sup>3</sup> If the device supports the execution of the TimeSynchronization service, then these properties shall be present.  
<sup>4</sup> If the device supports the execution of the UTCTimeSynchronization service, then these properties shall be present.  
<sup>5</sup> If this property is present, then Time\_Synchronization\_Interval, Align\_Intervals and Interval\_Offset shall be present and if present, this property shall be writable.  
<sup>6</sup> These properties are required if the device is an MS/TP master node.  
<sup>7</sup> These properties are required if the device supports the backup and restore procedures.  
<sup>8</sup> This property must be present and writable if the device supports backup and restore procedures.  
<sup>9</sup> This property is required if the device supports execution of either the SubscribeCOV or SubscribeCOVProperty service.  
<sup>10</sup> This property shall be present and writable if the device is capable of being a Slave-Proxy device.  
<sup>11</sup> This property shall be present if the device is capable of being a Slave-Proxy device that implements automatic discovery of slaves.  
<sup>12</sup> This property shall be present if the device is capable of being a Slave-Proxy device.

## Event Enrollment

BACnet Standard Event Enrollment					StruxureWare Device BACnet Alarm		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
28	description			O	Description	R	W
37	event-type	R			Alarm Type	R	
72	notify-type	R			Notify type	R	W
83	event-parameters	R			Alarm Trigger	R	W
78	object-property- reference	R			Monitored variable	R	W
36	event-state	R			Event state	R	
35	event-enable	R			Event enable	R	W
0	acked-transitions	R			Acknowledged transitions	R	
17	notification-class	R			BACnet notification	R	W
130	event-time-stamps	R			To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile name	PO	

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

**File**

BACnet Standard					StruxureWare Device		
File					BACnet File		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R	W		Object ID	R	
77	object-name	R			BACnet name	R	
79	object-type	R			BACnet type	R	
28	description			O	Description	R	
43	file-type	R			File type	R	
42	file-size	R <sup>1</sup>			File size	R	W
71	modification-date	R			Modification date	R	
13	archive		W		Archive	R	W
99	read-only	R			Read only	R	
41	file-access-method	R			File access method	R	
141	record-count			O <sup>2</sup>	Record count	PO	PO
168	profile-name			O	Profile name	PO	

<sup>1</sup> 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.

<sup>2</sup> 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.

**Note:** PO indicates “Proxy Only,” which means that the object is only supported by Workstation.

## Group

BACnet Standard				StruxureWare Device			
Group							
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R					
77	object-name	R					
79	object-type	R					
28	description			O			
53	list-of-group-members	R					
85	present-value	R					
168	profile-name			O			

Life Safety Point

BACnet Standard					StruxureWare Device		
Life Safety Point							
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R					
77	object-name	R					
79	object-type	R					
85	present-value	R <sup>1</sup>					
164	tracking-value			O			
28	description			O			
31	device-type			O			
111	status-flags	R					
36	event-state	R					
103	reliability	R <sup>1</sup>					
81	out-of-service	R					
160	mode		W				
175	accepted-modes	R					
113	time-delay			O <sup>2</sup>			
17	notification-class			O <sup>2</sup>			
166	life-safety-alarm-values			O <sup>2</sup>			
7	alarm-values			O <sup>2</sup>			
39	fault-values			O <sup>2</sup>			
35	event-enable			O <sup>2</sup>			
0	acked-transitions			O <sup>2</sup>			
72	notify-type			O <sup>2</sup>			
130	event-time-stamps			O <sup>2</sup>			
163	silenced	R					
161	operation-expected	R					
158	maintenance-required			O			
162	setting			O			
156	direct-reading			O <sup>3</sup>			
117	units			O <sup>3</sup>			
159	member-of			O			
168	profile-name			O			

<sup>1</sup> These properties are required to be writable when out-of-service is TRUE.

<sup>2</sup> These properties are required if the object supports intrinsic alarming.

<sup>3</sup> If either property is present, then both must be present.

## Life Safety Zone

BACnet Standard					StruxureWare Device		
Life Safety Zone							
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R					
77	object-name	R					
79	object-type	R					
85	present-value	R <sup>1</sup>					
164	tracking-value			O			
28	description			O			
31	device-type			O			
111	status-flags	R					
36	event-state	R					
103	reliability	R <sup>1</sup>					
81	out-of-service	R					
160	mode		W				
175	accepted-modes	R					
113	time-delay			O <sup>2</sup>			
17	notification-class			O <sup>2</sup>			
166	life-safety-alarm-values			O <sup>2</sup>			
7	alarm-values			O <sup>2</sup>			
39	fault-values			O <sup>2</sup>			
35	event-enable			O <sup>2</sup>			
0	acked-transitions			O <sup>2</sup>			
72	notify-type			O <sup>2</sup>			
130	event-time-stamps			O <sup>2</sup>			
163	silenced	R					
161	operation-expected	R					
158	maintenance-required			O			
165	zone-members	R					
159	member-of			O			
168	profile-name			O			

<sup>1</sup> These properties are required to be writable when out-of-service is TRUE.

<sup>2</sup> These properties are required if the object supports intrinsic alarming.

# Loop

BACnet Standard					StruxureWare Device		
Loop					BACnet Loop		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R			Value	R	W
28	description			O	Description	R	W
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	R	
81	out-of-service	R			Out of service	R	W
118	update-interval			O	Update interval (ms)	R	W
82	output units	R			Unit	R	W
60	manipulated-variable-reference	R			Manipulated variable reference	R	W
19	controlled-variable-reference	R			Controlled variable reference	R	W
21	controlled-variable-value	R			Controlled variable value	R	
20	controlled-variable-units	R			Unit	R	W
109	setpoint-reference	R			Setpoint reference	R	W
108	setpoint	R			Setpoint	R	W
2	action	R			Action	R	W
93	proportional-constant			O <sup>1</sup>	Proportional constant	R	W
94	proportional-constant-units			O <sup>1</sup>	Unit	R	W
49	integral-constant			O <sup>2</sup>	Integral constant	R	W
26	derivative-constant			O <sup>3</sup>	Derivative constant	R	W
27	derivative-constant-units			O <sup>3</sup>	Unit	R	W
14	bias			O	Bias	R	W
61	maximum-output			O	Maximum output	R	W
68	minimum-output			O	Minimum output	R	W
88	priority-for-writing	R			Priority for writing	R	W
22	cov-increment			O <sup>4</sup>	COV increment	PO	PO
113	time-delay			O <sup>5</sup>	Time delay (s)	R	W
17	notification-class			O <sup>5</sup>	BACnet notification	R	W

Loop (continued)

BACnet Standard					StruxureWare Device		
Loop					BACnet Loop		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
34	error-limit			O <sup>5</sup>	Error limit	R	W
35	event-enable			O <sup>5</sup>	Event enable	R	W
0	acked-transitions			O <sup>5</sup>	Acknowledged transitions	R	
72	notify-type			O <sup>5</sup>	Notify type	R	W
130	event-time-stamps			O <sup>5</sup>	To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile name	PO	

<sup>1</sup> If one of these optional properties is present, then both of these properties shall be present.  
<sup>2</sup> If one of these optional properties is present, then both of these properties shall be present.  
<sup>3</sup> If one of these optional properties is present, then both of these properties shall be present.  
<sup>4</sup> This property is required if the object supports COV reporting.  
<sup>5</sup> These properties are required if the object supports intrinsic reporting.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Multi-state Input

BACnet Standard					StruxureWare Device		
Multi-state Input					BACnet Multistate Input		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	
79	object-type	R			BACnet type	R	
85	present-value	R <sup>1</sup>			Value	R	
28	description			O	Description	R	W
31	device-type			O	Device type	PO	PO
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O <sup>2</sup>	Reliability	R	
81	out-of-service	R			Out of service	R	W
74	number-of-states	R			Number of states	R	W
110	state-text			O	Label	R	W
113	time-delay			O <sup>3</sup>	Time delay (s)	R	W
17	notification-class			O <sup>3</sup>	BACnet notification	R	W
7	alarm-values			O <sup>3</sup>	Is alarm value	R	W
39	fault-values			O <sup>3</sup>	Is fault value	R	W
35	event-enable			O <sup>3</sup>	Event enable	R	W
0	acked-transitions			O <sup>3</sup>	Acknowledged transitions	R	
72	notify-type			O <sup>3</sup>	Notify type	R	W
130	event-time-stamps			O <sup>3</sup>	To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile name	PO	

<sup>1</sup> This property is required to be writable when out-of-service is TRUE.

<sup>2</sup> This property shall be required if fault-values is present.

<sup>3</sup> These properties are required if the object supports intrinsic reporting.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Multi-state Output

BACnet Standard					StruxureWare Device		
Multi-state Output					BACnet Multistate Output		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value		W		Value	R	W
28	description			O	Description	R	W
31	device-type			O	Device type	PO	PO
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	R	
81	out-of-service	R			Out of service	R	W
74	number-of-states	R			Number of states	R	W
110	state-text			O	Label	R	W
87	priority-array	R			Command priority levels	R	
104	relinquish-default	R			Relinquish default	R	W
113	time-delay			O <sup>1</sup>	Time delay	PO	PO
17	notification-class			O <sup>1</sup>	BACnet notification	PO	PO
40	feedback-value			O <sup>1</sup>	Feedback value	PO	PO
35	event-enable			O <sup>1</sup>	Event enable	PO	PO
0	acked-transitions			O <sup>1</sup>	Acknowledged transitions	PO	
72	notify-type			O <sup>1</sup>	Notify type	PO	PO
130	event-time-stamps			O <sup>1</sup>	To-off-normal time	PO	
					To-fault time		
					To-normal time		
168	profile-name			O	Profile name	PO	

<sup>1</sup>These properties are required if the object supports intrinsic reporting.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Multi-state Value

BACnet Standard					StruxureWare Device		
Multi-state Value					BACnet Multistate Value		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R <sup>1</sup>			Value	R	W
28	description			O	Description	R	W
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O <sup>2</sup>	Reliability	R	
81	out-of-service	R			Out of service	R	W
74	number-of-states	R			Number of states	R	W
110	state-text			O	Label	R	W
87	priority-array			O <sup>3</sup>	Command Priority Levels	R	
104	relinquish-default			O <sup>3</sup>	Relinquish default	R	W
113	time-delay			O <sup>4</sup>	Time delay (s)	R	W
17	notification-class			O <sup>4</sup>	BACnet notification	R	W
7	alarm-values			O <sup>4</sup>	Is alarm value	R	W
39	fault-values			O <sup>4</sup>	Is fault value	R	W
35	event-enable			O <sup>4</sup>	Event enable	R	W
0	acked-transitions			O <sup>4</sup>	Acknowledged transitions	R	
72	notify-type			O <sup>4</sup>	Notify type	R	W
130	event-time-stamps			O <sup>4</sup>	To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile name	PO	

<sup>1</sup> If present-value is commandable, then it is required to also be writable. This property is required to be writable when out-of-service is TRUE.

<sup>2</sup> This property shall be required if fault-values is present.

<sup>3</sup> If present-value is commandable, then both of these properties shall be present.

<sup>4</sup> These properties are required if the object supports intrinsic reporting.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Notification Class

BACnet Standard Notification Class					StruxureWare Device BACnet Notification Class		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
28	description			O	Description	R	W
17	notification-class	R			BACnet notification	R	
86	priority	R			Priority-to-off-normal Priority-to-fault Priority-to-normal	R	W
1	ack-required	R			Acknowledgement required	R	W
102	recipient-list	R			Recipient rules	R	W
168	profile-name			O	Profile name	PO	

**Note:** PO indicates “Proxy Only,” which means that the object is only supported by Workstation.

## Program

BACnet Standard					StruxureWare Device		
Program					BACnet Program (proxy)		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	PO	
77	object-name	R			BACnet name	PO	PO
79	object-type	R			BACnet type	PO	
92	program-state	R			Program state	PO	
90	program-change		W		Program change	PO	PO
100	reason-for-halt			O <sup>1</sup>	Reason for halt	PO	
29	description-of-halt			O <sup>1</sup>	Description for halt	PO	PO
91	program-location			O	Program location	PO	PO
28	description			O	Description	PO	PO
111	status-flags	R			Status flags	PO	
103	reliability			O	Reliability	PO	
81	out-of-service	R			Out of service	PO	PO
168	profile-name			O	Profile name	PO	

<sup>1</sup> If one of the optional properties, Reason\_For\_Halt or description\_Of\_Halt is present, then both of these properties shall be present.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Pulse Converter

BACnet Standard					StruxureWare Device		
Pulse Converter					Pulse Converter (proxy)		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	PO	
77	object-name	R			BACnet name	PO	PO
79	object-type	R			BACnet type	PO	
28	description			O	Description	PO	PO
85	present-value	R <sup>1</sup>			Value	PO	
181	input-reference			O	Input reference	PO	PO
111	status-flags	R			Status flags	PO	
36	event-state	R			Event state	PO	
103	reliability			O	Reliability	PO	
81	out-of-service	R			Out of service	PO	PO
117	units	R			Units	PO	PO
188	scale-factor	R			Scale factor	PO	PO
176	adjust-value		W		Adjust value	PO	PO
177	count	R			Count	PO	
189	update-time	R			Update time	PO	
179	count-change-time	R <sup>2</sup>			Count change time	PO	
178	count-before-change	R <sup>2</sup>			Count before change	PO	
22	cov-increment			O <sup>3</sup>	COV increment	PO	PO
180	cov-period			O <sup>3</sup>	COV period	PO	PO
17	notification-class			O <sup>4</sup>	BACnet notification	PO	PO
113	time-delay			O <sup>4</sup>	Time delay	PO	PO
45	high-limit			O <sup>4</sup>	Upper limit	PO	PO
59	low-limit			O <sup>4</sup>	Lower limit	PO	PO
25	deadband			O <sup>4</sup>	Deadband	PO	PO
52	limit-enable			O <sup>4</sup>	Limit enable	PO	PO
35	event-enable			O <sup>4</sup>	Event enable	PO	PO
0	acked-transitions			O <sup>4</sup>	Acknowledgement transitions	PO	
72	notify-type			O <sup>4</sup>	Notify type	PO	PO
130	event-time-stamps			O <sup>4</sup>	To-off-normal time		
				O <sup>4</sup>	To-fault time	PO	
				O <sup>4</sup>	To-normal time		
168	profile-name			O	Profile name	PO	

<sup>1</sup> This property is required to be writable when out-of-service is TRUE.

<sup>2</sup> These properties are required if Count\_Before\_Change is writable.

<sup>3</sup> These properties are required if the object supports COV reporting.

<sup>4</sup> These properties are required if the object supports intrinsic reporting.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Schedule

BACnet Standard					StruxureWare Device		
Schedule					BACnet Schedule		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R			Value	R	W
28	description			O	Description	R	W
32	effective-period	R			Effective period	R	W
123	weekly-schedule			O <sup>1</sup>	Weekly	R	W
174	schedule-default	R			Default value	R	W
32	exception-schedule			O <sup>1</sup>	Exception	R	W
54	list-of-object-property-references	R			Object property references	R	W
88	priority-for-writing	R			Priority for writing	R	W
111	status-flags	R			Status flags	R	
103	reliability	R			Reliability	R	
81	out-of-service	R			Out of service	R	
168	profile-name			O	Profile name	PO	
512	proprietary-property-512				Previous transition time	R	
513	proprietary-property-513				Next transition time	R	
514	proprietary-property-514				Following transition time	R	
518	proprietary-property-518				Time since previous transition (min)	R	
519	proprietary-property-519				Time to next transition (min)	R	
520	proprietary-property-520				Time to following transition (min)	R	
521	proprietary-property-521				Next transition value	R	
522	proprietary-property-522				Following transition value	R	

<sup>1</sup>At least one of these properties is required.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Trend Log

BACnet Standard					StruxureWare Device		
Trend Log					BACnet Trend Log		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
28	description			O	Description	R	W
133	log_enable		W		Log enable	R	W
142	start-time			O <sup>1,2</sup>	Start time	R	W
143	stop-time			O <sup>1,2</sup>	Stop time	R	W
132	log-device-object-property			O <sup>1</sup>	Log device object property	R	W
134	log-interval			O <sup>1,2</sup>	Log interval	R	W
128	cov-resubscription-interval			O	COV resubscription interval	R	
127	client-cov-increment			O	Delta	R	W
144	stop-when-full	R			Stop when full	R	W
126	buffer-size	R			Buffer size	R	W
131	log-buffer	R			Trend log list	R	
141	record-count		W		Record count	R	W
145	total-record-count	R			Total record count	R	
137	notification-threshold			O <sup>3</sup>	Notification threshold	R	W
140	records-since-notification			O <sup>3</sup>	Records since notification	R	
173	last-notify-record			O <sup>3</sup>	Last notify record	R	
36	event-state	R			Event state	R	
17	notification-class			O <sup>3</sup>	BACnet notification	R	W
35	event-enable			O <sup>3</sup>	Event enable	R	W
0	acked-transitions			O <sup>3</sup>	Acknowledged transitions	R	
72	notify-type			O <sup>3</sup>	Notify type	R	W
130	event-time-stamps			O <sup>3</sup>	To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile name	PO	
197	logging-type	R			Logging type	R	W
193	align-intervals			O <sup>4</sup>	Align intervals	PO	PO

## Trend Log (continued)

BACnet Standard					StruxureWare Device		
Trend Log					BACnet Trend Log		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
195	interval-offset			O <sup>4</sup>	Interval offset	PO	PO
205	trigger			O	Trigger	PO	PO

<sup>1</sup> These properties are required to be present if the monitored property is a BACnet property.

<sup>2</sup> If present, these properties are required to be writable.

<sup>3</sup> These properties are required to be present if the object supports intrinsic reporting.

<sup>4</sup> These properties are required to be present if the object supports clock-aligned reporting.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

Access Door

BACnet Standard					StruxureWare Device		
Access Door							
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R					
77	object-name	R					
79	object-type	R					
85	present-value		W				
28	description			O			
111	status-flags	R					
36	event-state	R					
103	reliability	R					
81	out-of-service	R					
87	priority-array	R					
104	relinquish-default	R					
231	door-status			O <sup>1,2</sup>			
233	lock-status			O <sup>1</sup>			
235	secured-status			O			
228	door-members			O			
230	door-pulse-time	R					
227	door-extended-pulse-time	R					
232	door-unlock-delay-time			O			
229	door-open-too-long-time	R					
226	door-alarm-state			O <sup>1,3</sup>			
234	masked-alarm-values			O			
158	maintenance-required			O			
113	time-delay			O <sup>3</sup>			
17	notification-class			O <sup>3</sup>			
7	alarm-values			O <sup>3</sup>			
39	fault-values			O <sup>3</sup>			
35	event-enable			O <sup>3</sup>			
0	acked-transitions			O <sup>3</sup>			

## Access Door (continued)

BACnet Standard					StruxureWare Device		
Access Door							
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
72	notify-type			O <sup>3</sup>			
130	event-time-stamps			O <sup>3</sup>			
168	profile-name			O			

<sup>1</sup> These properties, when present, shall be writable when Out\_Of\_Service is TRUE.

<sup>2</sup> This property shall be required if the property, Secured\_Status, is present.

<sup>3</sup> These properties are required if the object supports intrinsic reporting.

## Event Log

BACnet Standard					StruxureWare Device		
Event Log							
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R					
77	object-name	R					
79	object-type	R					
28	description			O			
111	status-flags	R					
36	event-state	R					
103	reliability			O			
133	enable		W				
142	start-time			O <sup>1,2</sup>			
143	stop-time			O <sup>1,2</sup>			
144	stop-when-full	R					
126	buffer-size	R					
131	log-buffer	R					
141	record-count		W				
145	total-record-count	R					
137	notification-threshold			O <sup>3</sup>			
140	records-since-notification			O <sup>3</sup>			
173	last-notify-record			O <sup>3</sup>			
17	notification-class			O <sup>3</sup>			
35	event-enable			O <sup>3</sup>			
0	acked-transitions			O <sup>3</sup>			
72	notify-type			O <sup>3</sup>			
168	profile-name			O			

<sup>1</sup> If present, these properties are required to be writable.

<sup>2</sup> If one of these properties is present, then all shall be present.

<sup>3</sup> These properties are required to be present if the object supports intrinsic reporting.

## Load Control

BACnet Standard					StruxureWare Device		
Load Control					Load control (proxy)		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	PO	
77	object-name	R			BACnet name	PO	PO
79	object-type	R			BACnet type	PO	
28	description			O	Description	PO	PO
222	state-description			O	State description	PO	PO
85	present-value	R			Value	PO	PO
111	status-flags	R			Status flags	PO	
36	event-state	R			Event state	PO	
103	reliability			O	Reliability	PO	
218	requested-shed-level		W				
142	start-time		W	O <sup>1,2</sup>			
219	shed-duration		W				
213	duty-window		W				
133	enable		W				
215	full-duty-baseline			O			
214	expected-shed-level	R					
212	actual-shed-level	R					
221	shed-levels		W <sup>1</sup>				
220	shed-level-descriptions	R					
17	notification-class			O <sup>2</sup>	BACnet notification	PO	PO
35	event-enable			O <sup>2</sup>	Event enable	PO	PO
0	acked-transitions			O <sup>2</sup>	Acknowledged transitions	PO	
72	notify-type			O <sup>2</sup>	Notify type	PO	PO
130	event-time-stamps			O <sup>2</sup>	To-off-normal time To-fault time To-normal time	PO	
168	profile-name			O	Profile name	PO	

<sup>1</sup> The elements of this array are required to be writable, although the array is not required to be resizable.

<sup>2</sup> These properties are required to be present if the object supports intrinsic reporting.

**Note:** PO indicates "Proxy Only," which means that the object is only supported by Workstation.

## Structured View

BACnet Standard					StruxureWare Device		
Structured View							
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R					
77	object-name	R					
79	object-type	R					
28	description			O			
208	node-type	R					
207	node-subtype			O			
211	subordinate-list	R					
210	subordinate-annotations			O			
167	profile-name			O			

## Trend Log Multiple

BACnet Standard					StruxureWare Device		
Trend Log Multiple							
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R					
77	object-name	R					
79	object-type	R					
28	description			O			
111	status-flags	R					
36	event-state	R					
103	reliability			O			
133	enable		W				
142	start-time			O <sup>1</sup>			
143	stop-time			O <sup>1</sup>			
132	log-device-object-property	R					
197	logging-type	R					
134	log-interval	R <sup>2</sup>					
193	align-intervals			O <sup>3</sup>			
195	interval-offset			O <sup>3</sup>			
205	trigger			O			
144	stop-when-full	R					
126	buffer-size	R					
131	log-buffer	R					
141	record-count		W				
145	total-record-count	R					

## Trend Log Multiple (continued)

BACnet Standard					StruxureWare Device		
Trend Log Multiple							
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
137	notification-threshold			O <sup>4</sup>			
140	records-since-notification			O <sup>4</sup>			
173	last-notify-record			O <sup>4</sup>			
17	notification-class			O <sup>4</sup>			
35	event-enable			O <sup>4</sup>			
0	acked-transitions			O <sup>4</sup>			
72	notify-type			O <sup>4</sup>			
130	event-time-stamps			O <sup>4</sup>			
168	profile-name			O			

<sup>1</sup> If present, these properties are required to be writable.

<sup>2</sup> If present, this property is required to be writable when Logging\_Type has the value POLLED.

<sup>3</sup> These properties are required to be present if the object supports clock-aligned logging

<sup>4</sup> These properties are required to be present if the object supports intrinsic reporting

## Vendor Specific Implementations

### Serial Number Property

Every Schneider Electric StruxureWare device has a unique serial number. The serial number property of a StruxureWare BACnet device is only the lower portion of its Ethernet MAC address. The serial number is made available by the Serial\_Number property of the Device object. The property identifier is 515, and the data type is Unsigned.

Device Property	ID	Description
Serial_Number	515	Serial number value derived from Ethernet MAC address

### Support for Optimum Start-Stop

The controller includes a proprietary extension that can be used, together with Script programming, to optimize the start and stop times for a heating and cooling system based on scheduled occupancy times. The extension consists of three proprietary properties of the Schedule object type.

Schedule Property	ID	Description
Previous_Transition_Time	512	The time when the Schedule's present-value most recently changed value.
Next_Transition_Time	513	The time when the Schedule's present-value is next scheduled to change value.
Following_Transition_Time	514	The time when the Schedule's present-value is next scheduled to change value after the time indicated by Next_Transition.

### Unsigned Numbers Restrictions

Any property or service parameter that is an unsigned number has an upper limit restriction of  $2^{32} - 2$  (4294967294). This upper limit restriction is one less than the full range of all possible 32 bit numbers.

### Multistate Object Restrictions

Multistate objects (input, output, and value) have an upper limit restriction of 4096 on the number of configurable states. In addition, the state text length is limited to 32 octets.

## Interpretation of Wildcards in Dates

The BACnet specification [ANSI/ASHRAE Standard 135-2004] is open to multiple interpretations regarding the meaning of wildcards in dates, especially when used to specify date ranges. This section describes how the controllers, especially in the context of the Schedule properties Exception\_Schedule and Effective\_Period, and the Calendar property Date\_List, interpret wildcards.

For purposes of comparing dates, the day-of-week fields are not used. That is, they are totally redundant. When comparing dates, a wildcard field is considered equal to the corresponding field in the date being compared. A date falls within the range if it is not before the StartDate and not after the EndDate.

Because the day-of-week field is redundant, its value must be either unspecified or consistent with the other fields. Because it can be consistent with those fields only if they are specified, the controllers allow the day-of-week to be specified only if the other three fields are specified as well.

Accordingly, the following conditions in a date range are treated as errors and prevent a WriteProperty from completing:

1. A day-of-week is specified, but two or fewer of the other fields in the Date are specified.
2. A day-of-week is specified, but is inconsistent with the Date specified by the other fields.
3. A year field is specified that is outside the range limit of 1989-2105.
4. The EndDate is earlier than the StartDate.
5. Any of the specified fields are out of range, for example, 31<sup>st</sup> day of February.