

StruxureWare™ Building Operation

AS PICS



AS

- StruxureWare has been designed to strictly comply with the ASHRAE BACnet standard.
- BACnet enables integration between Devices designed for a wide variety of applications.
- Natively supports BACnet, LonWorks, Modbus, and Web Services, and can serve as a gateway between protocols.
- This Protocol Implementation Conformance Statement (PICS) document details the BACnet Interoperability Building Blocks that are supported in StruxureWare.

Protocol Implementation Conformance Statement

Date	June 30, 2014
Vendor name	Schneider Electric
Vendor ID	10
Website	www.Schneider-Electric.com/buildings
Range name	StruxureWare Building Operation
Product name	Automation Server
Product model number	AS
Application software version	N/A

Firmware revision	1.5
Base ASHRAE standard	135-2004-d,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 that 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.

The Automation Server also natively supports other protocols, such as LonWorks, Modbus, and Web Services, and can be used as a gateway device to exchange values between protocols.

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 kbaud	X
		19.2 kbaud	
		38.4 kbaud	
		76.8 kbaud	
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	

Note: For messages received in UTF-8 encoding, responses are transmitted with the narrowest character set for optimal interoperability.

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 ¹								

¹ 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		B-SS
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								
SCHED-WS-A	Scheduling - Weekly Schedule-A									x
SCHED-WS-I-B	Scheduling Weekly Schedule Internal-B									
SCHED-R-B	Scheduling - Readonly-B									

Note: The SCHED-A BACnet interoperability building block was removed from the BACnet Standard.

Trends

BIBB	Description	BACnet Standard							Product Conformance	
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA		B-SS
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									x
T-AVM-A	Advanced View and Modify-A	x								x

Note: The T-VMT-A BACnet interoperability building block was removed from the BACnet Standard.

BACnet Interoperability Building Blocks (BIBBs) Support

Device Management

BIBB	Description	BACnet Standard								Product Conformance
		B-AWS	B-OWS	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 ¹	x ¹	x
DM-DOB-A	Dynamic Object Binding-A									
DM-DOB-B	Dynamic Object Binding-B	x	x	x	x	x	x	x ¹	x ¹	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									
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-ATS-A	Automatic Time Synchronization									
DM-MTS-A	Manual Time Synchronization-A	x	x							x

¹ 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									
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	P	P							P	P	P
0	Analog Input	P	P							x	P	P
1	Analog Output	P	P							x	P	P
2	Analog Value	P	P							x	x	x
18	Averaging	P	P							P	P	P
3	Binary Input	P	P							x	P	P
4	Binary Output	P	P							x	P	P
5	Binary Value	P	P							x	x	x
6	Calendar	P	P							x	x	x
7	Command	P	P							P	P	P
8	Device	x	x	x	x	x	x	x	x	x		
9	Event Enrollment	P	P							x	x	x
10	File	P								x	P	P
11	Group	P										
21	Life Safety Point											
22	Life Safety Zone											
12	Loop	P	P							x	x	x
13	Multi-state Input	P	P							x	P	P
14	Multi-state Output	P	P							x	P	P
19	Multi-state Value	P	P							x	x	x
15	Notification Class	P	P							x	x	x
16	Program	P	P							x	P	P
24	Pulse Converter	P	P							P	P	P
17	Schedule	P	P							x	x	x
20	Trend Log	P	P							x	x	x
30	Access Door											
25	Event Log	P										
28	Load Control	P	P							P	P	P
29	Structured View	P										
27	Trend Log Multiple	P										
32	Access Credential											

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											
34	Access Rights											
35	Access User											
36	Access Zone											
37	Credential Data Input											
26	Global Group	P										

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

Access Credential

BACnet Standard				StruxureWare Device			
Access Credential							
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			
323	global-identifier		W				
111	status-flags	R					
103	reliability	R					
264	credential-status	R					
303	reason-for-disable	R					
257	authentication-factors	R					
254	activation-time	R					
270	expiry-time	R					
263	credential-disable	R					
267	days-remaining			O ¹			
319	uses-remaining			O			
244	absentee-limit			O ¹			
262	belongs-to			O			
256	assigned-access-rights	R					
276	last-access-point			O			
275	last-access-event			O			
281	last-use-time			O			
308	trace-flag			O			
306	threat-authority			O			
271	extended-time-enable			O			
284	master-exemption			O			
299	passback-exemption			O			
293	occupancy-exemption			O			
168	profile-name			O			

¹ If this property is present, then the property Last_Use_Time shall also be present.

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 ^{1,2}			
233	lock-status			O ¹			
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 ^{1,3}			
234	masked-alarm-values			O			
158	maintenance-required			O			
113	time-delay			O ³			
17	notification-class			O ³			
7	alarm-values			O ³			
39	fault-values			O ³			
35	event-enable			O ³			
0	acked-transitions			O ³			

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			<input type="radio"/> ³			
130	event-time-stamps			<input type="radio"/> ³			
168	profile-name			<input type="radio"/>			

¹ These properties, when present, shall be writable when Out_Of_Service is TRUE.

² This property shall be required if the property, Secured_Status, is present.

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

Access Point

BACnet Standard				StruxureWare Device			
Access 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					
28	description			O			
111	status-flags	R					
36	event-state	R					
103	reliability	R					
81	out-of-service	R					
260	authentication-status	R					
255	active-authentication-policy	R					
289	number-of-authentication-policies	R					
258	authentication-policy-list			O ¹			
259	authentication-policy-names			O ¹			
261	authentication-mode	R					
326	verification-time			O			
282	lockout			O ²			
283	lockout-relinquish-time			O ²			
273	failed-attempts			O			
272	failed-attempt-events			O			
285	max-failed-attempts			O ³			
274	failed-attempts-time			O ³			
307	threat-level			O			
298	occupancy-upper-limit-enforced			O			
295	occupancy-lower-limit-enforced			O			
291	occupancy-count-adjust			O			
253	accompaniment-time			O			
247	access-event	R					
322	access-event-tag	R					
250	access-event-time	R					

Access Point (continued)

BACnet Standard				StruxureWare Device			
Access Point							
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
249	access-event-credential	R					
248	access-event-authentication-factor			O			
246	access-doors	R					
88	priority-for-writing	R					
287	muster-point			O			
321	zone-to			O			
320	zone-from			O			
17	notification-class			O ⁴			
309	transaction-notification-class			O			
245	access-alarm-events			O ⁴			
251	access-transaction-events			O ⁴			
35	event-enable			O ⁴			
0	acked-transitions			O ⁴			
72	notify-type			O ⁴			
130	event-time-stamps			O ⁴			
168	profile-name			O			

¹ If present-value is commandable, then both of these properties shall be present

Access Right

BACnet Standard				StruxureWare Device			
Access Right							
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			
323	global-identifier		W				
111	status-flags	R					
103	reliability	R					
133	enable	R					
288	negative-access-rules	R					
302	positive-access-rules	R					
252	accompaniment			O			
168	profile-name			O			

Access User

BACnet Standard				StruxureWare Device			
Access User				Access User			
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			
323	global-identifier		W				
111	status-flags	R					
103	reliability	R					
318	user-type	R					
317	user-name			O			
310	user-external-identifier			O			
311	user-information-reference			O			
286	members			O			
159	member-of			O			
265	credentials	R					
168	profile-name			O			

Access Zone

BACnet Standard				StruxureWare Device			
Access 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					
28	description			O			
323	global-identifier						
296	occupancy-state						
111	status-flags						
36	event-state						
103	reliability						
81	out-of-service						
290	occupancy-count			O ¹ _{3,4}			
292	occupancy-count-enable			O ³ ₄			
176	adjust-value			O ³ _{4,5}			
297	occupancy-upper-limit			O			
294	occupancy-lower-limit			O			
266	credentials-in-zone			O			
277	last-credential-added			O			
278	last-credential-added-time			O			
279	last-credential-removed			O			
280	last-credential-removed-time			O			
300	passback-mode			O			
301	passback-timeout			O ²			
268	entry-points	R					
269	exit-points	R					
113	time-delay			O ³			
17	notification-class			O ³			
7	alarm-values			O ³			
35	event-enable			O ³			
0	acked-transitions			O ³			

Access Zone (continued)

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

¹ These properties, if present, shall be writable when Out_Of_Service is TRUE.

² If this property is present, then Passback_Mode shall be present.

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

⁴ These properties are required if the object supports occupancy counting.

⁵ The Adjust_Value property shall be writable if present.

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	P	
77	object-name	R			BACnet name	P	P
79	object-type	R			BACnet type	P	
85	present-value	R ¹			Value	P	P
28	description			O	Description	P	P
31	device-type			O	Device type	P	P
111	status-flags	R			Status flags	P	
36	event-state	R			Event state	P	
103	reliability			O	Reliability	P	
81	out-of-service	R			Out of service	P	P
186	scale	R					
117	units	R					
188	prescale			O			
65	max-pres-value	R			Maximum value	P	P
192	value-change-time			O ²	Value change time	P	
190	value-before-change			O ^{2,3}	Value before change	P	P
191	value-set			O ^{2,3}	Value set	P	P
184	logging-record			O			
183	logging-object			O			
186	pulse-rate			O ^{1,4}	Pulse rate	P	P
45	high-limit			O ⁴	Upper limit	P	P
59	low-limit			O ⁴	Lower limit	P	P
182	limit-monitoring-interval			O ⁴	Limit Monitoring interval	P	P
17	notification-class			O ⁴	BACnet notification	P	P
113	time-delay			O ⁴	Time delay	P	P
52	limit-enable			O ⁴	Limit enable	P	P
35	event-enable			O ⁴	Event enable	P	P

Accumulator

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

¹ This property is required to be writable when out-of-service is TRUE.

² These properties are required if either Value_Before_Change or Value_Set is writable.

³ Either Value_Before_Change or Value_Set may be writable, but not both.

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

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

Analog Input

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

¹ This property is required to be writable when out-of-service is TRUE.

² This property is required if the object supports COV reporting.

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

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

Analog Output

BACnet Standard				StruxureWare Device			
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	P	P
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	P	
81	out-of-service	R			Out of service	R	W
117	units	R			Unit	R	W
69	min-pres-value			O	Minimum value	P	P
65	max-pres-value			O	Maximim value	P	P
106	resolution			O	Resolution	P	P
87	priority-array	R			Command Priority Levels	R	
104	relinquish-default	R			Relinquish default	R	W
22	cov-increment			O ¹	COV increment	R	W
113	time-delay			O ²	Time delay	R	W
17	notification-class			O ²	BACnet notification	R	W
45	high-limit			O ²	Upper limit	R	W
59	low-limit			O ²	Lower limit	R	W
25	deadband			O ²	Deadband	R	W
52	limit-enable			O ²	Limit enable	R	W
35	event-enable			O ²	Event enable	R	W
0	acked-transitions			O ²	Acknowledged transitions	R	
72	notify-type			O ²	Notify type	R	W
130	event-time-stamps			O ²	To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile-name	P	

¹ This property is required if the object supports COV reporting.

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

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

Analog Value

BACnet Standard				StruxureWare Device			
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 ⁴			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	P	
81	out-of-service	R			Out of service	R	W
117	units	R			Unit	R	W
87	priority-array	R		O ¹	Command Priority Levels	R	
104	relinquish-default			O ¹	Relinquish default	R	W
22	cov-increment			O ²	COV increment	R	W
113	time-delay			O ³	Time delay	R	W
17	notification-class			O ³	BACnet notification	R	W
45	high-limit			O ³	Upper limit	R	W
59	low-limit			O ³	Lower limit	R	W
25	deadband			O ³	Deadband	R	W
52	limit-enable			O ³	Limit enable	R	W
35	event-enable			O ³	Event enable	R	W
0	acked-transitions			O ³	Acknowledged transitions	R	
72	notify-type			O ³	Notify type	R	W
130	event-time-stamps			O ³	To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile name	P	

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

² This property is required 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.

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

Averaging

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

¹ 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: P indicates "Proxy Only," which means that the object is only supported by Workstation.

Binary Input

BACnet Standard				StruxureWare Device			
Binary 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 ¹			Value	R	W
28	description			O	Description	R	W
31	device-type			O	Device type	P	P
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	P	
81	out-of-service	R			Out of service	R	W
84	polarity	R			Polarity	R	W
46	inactive-text			O ²	Inactive text	R	W
4	active-text			O ²	Active text	R	W
16	change-of-state-time			O ³	Change of state time	P	
15	change-of-state-count			O ³	Change of state count	P	P
115	time-of-state-count-reset			O ³	Time of state count reset	P	
33	elapsed-active-time			O ⁴	Elapsed active time	P	P
114	time-of-active-time-reset			O ⁴	Time of active time reset	P	
113	time-delay			O ⁵	Time delay	R	W
17	notification-class			O ⁵	BACnet notification	R	W
6	alarm-value			O ⁵	Alarm value	R	W
35	event-enable			O ⁵	Event enable	R	W
0	acked-transitions			O ⁵	Acknowledged transitions	R	

Binary Input (continued)

BACnet Standard				StruxureWare Device			
Binary Input							
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
72	notify-type			O ⁵	Notify type	R	W
130	event-time-stamps			O ⁵	To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile name	P	

¹ This property is required to be writable when out-of-service is TRUE.

² If either optional property, inactive-text or active-text, is present, then both 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 either optional property, 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.

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

Binary Output

BACnet Standard				StruxureWare Device			
Binary 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	P	P
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	P	
81	out-of-service	R			Out of service	R	W
84	polarity	R			Polarity	R	W
46	inactive-text			O ¹	Inactive text	R	W
4	active-text			O ¹	Active text	R	W
16	change-of-state-time			O ²	Change of state time	P	
15	change-of-state-count			O ²	Change of state count	P	P
115	time-of-state-count-reset			O ²	Time of state count reset	P	
33	elapsed-active-time			O ³	Elapsed active time	P	P
114	time-of-active-time-reset			O ³	Time of active time reset	P	
66	minimum-off-time			O	Minimum off time	P	P
67	minimum-on-time			O	Minimum on time	P	P
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							
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
113	time-delay			O ⁴	Time delay	P	P
17	notification-class			O ⁴	BACnet notification	P	P
6	alarm-value			O ⁴	Alarm value	P	P
35	event-enable			O ⁴	Event enable	P	P
0	acked-transitions			O ⁴	Acknowledged transitions	P	
72	notify-type			O ⁴	Notify type	P	P
130	event-time-stamps			O ⁴	To-off-normal time To-fault time To-normal time	P	
168	profile-name			O	Profile name	P	

- ¹ If either optional property, inactive-text or active-text, is present, then both 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 either optional property, 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.

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

Binary Value

BACnet Standard				StruxureWare Device			
Binary 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 ¹			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	P	
81	out-of-service	R			Out of service	R	W
46	inactive-text			O ²	Inactive text	R	W
4	active-text			O ²	Active text	R	W
16	change-of-state-time			O ³	Change of state time	P	
15	change-of-state-count			O ³	Change of state count	P	P
115	time-of-state-count-reset			O ³	Time of state count reset	P	
33	elapsed-active-time			O ⁴	Elapsed active time	P	P
114	time-of-active-time-reset			O ⁴	Time of active time reset	P	
66	minimum-off-time			O	Minimum off time	P	P
67	minimum-on-time			O	Minimum on time	P	P
87	priority-array			O ⁵	Command Priority Levels	R	
104	relinquish-default			O ⁵	Relinquish default	R	W
113	time-delay			O ⁶	Time delay	R	W
17	notification-class			O ⁶	BACnet notification	R	W
6	alarm-value			O ⁶	Alarm value	R	W
35	event-enable			O ⁶	Event enable	R	W
0	acked-transitions			O ⁶	Acknowledged transitions	R	

Binary Value (continued)

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

- 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 either optional property, inactive-text or active-text, is present, then both 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 either optional property, elapsed-active-time or time-of-active-time-reset, is present, then both of these properties shall be present.
- ⁵ If present-value is commandable, then both of these properties shall be present.
- ⁶ These properties are required if the object supports intrinsic reporting.

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

Calendar

BACnet Standard				StruxureWare Device			
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	P	

Note: P 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	P	
77	object-name	R			BACnet name	P	P
79	object-type	R			BACnet type	P	
28	description			O	Description	P	P
85	present-value		W		Value	P	P
47	in-process	R			In process	P	
9	all-writes-successful	R			All writes successful	P	
2	action	R					
3	action-text			O			
168	profile-name			O	Profile name	P	

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

Device

BACnet Standard				StruxureWare Device			
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 ¹	APDU segment timeout	R	W
122	vt-classes-supported			O ²			
5	active-vt-sessions			O ²			
57	local-time			O ^{3,4}	Local time	R	
56	local-date			O ^{3,4}	Local date	R	
119	utc-offset			O ⁴	UTC offset (min)	R	
24	daylight-savings-status			O ⁴	Daylight savings	R	

Device (continued)

BACnet Standard				StruxureWare Device			
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 ⁵	Time synchronization recipients	R	W
64	max-master			O ⁶	Maximum master ¹³	R	W
63	max-info-frames			O ⁶	Maximum information frames ¹³	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 ⁷	Backup configuration files	R	
157	last-restore-time			O ⁷	Last restore time	R	
153	backup-failure-timeout			O ⁸	Backup failure timeout	R	W
152	active-cov-subscriptions			O ⁹		R ¹⁴	
167	max-segments-accepted			O ¹	Maximum segments accepted	R	
172	slave-proxy-enable			O ¹⁰			
169	auto-slave-discovery			O ¹¹			
171	slave-address-binding			O ¹²			
170	manual-slave-address-binding			O ¹⁰			
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-synchronization-recipients			O ⁵			
204	time-synchronization-interval			O			
193	align-intervals			O			

Device (continued)

BACnet Standard				StruxureWare Device			
Device							
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
195	interval-offset			O			
338	backup-and-restore-state			O	Backup and restore state	R	
339	backup-preparation-time			O	Backup preparation time		W
340	restore-completion-time			O	Restore completion time		W
341	restore-preparation-time			O	Restore preparation time		W
515	proprietary-property-515				Serial number	R	
517	proprietary-property-517				Infinity path	R	

- ¹ Required if segmentation of any kind is supported.
- ² 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.
- 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 this property is present, then Time_Synchronization_Interval, Align_Intervals and Interval_Offset shall be present and 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 the device supports the backup and restore procedures.
- ⁸ This property must be present and writable if the device supports backup and restore procedures.
- ⁹ This property is required if the device supports execution of either the SubscribeCOV or SubscribeCOVProperty service.
- ¹⁰ This property shall be present and writable if the device is capable of being a Slave-Proxy device.
- ¹¹ This property shall be present if the device is capable of being a Slave-Proxy device that implements automatic discovery of slaves.
- ¹² This property shall be present if the device is capable of being a Slave-Proxy device.
- ¹³ These properties are found in two locations: on the MSTP network object of the BACnet Interface (Automation Server) and on device objects (for proxies).
- ¹⁴ This property is not supported by Workstation.

Event Enrollment

BACnet Standard				StruxureWare Device			
Event Enrollment							
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	P	

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

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 ^{1,2}			
143	stop-time			O ^{1,2}			
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 ³			
140	records-since-notification			O ³			
173	last-notify-record			O ³			
17	notification-class			O ³			
35	event-enable			O ³			
0	acked-transitions			O ³			
72	notify-type			O ³			
168	profile-name			O			

¹ If present, these properties are required to be writable.

² If one of these properties is present, then all shall be present.

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

File

BACnet Standard				StruxureWare Device			
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	P
79	object-type	R			BACnet type	R	
28	description			O	Description	P	P
43	file-type	R			File type	R	
42	file-size	R ¹			File size	R	W ³
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 ²	Record count	P	P
168	profile-name			O	Profile name	P	

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.

³ For local file objects, a value of zero can be written only during a BACnet restore procedure.

Note: P 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 ¹					
164	tracking-value			O			
28	description			O			
31	device-type			O			
111	status-flags	R					
36	event-state	R					
103	reliability	R ¹					
81	out-of-service	R					
160	mode		W				
175	accepted-modes	R					
113	time-delay			O ²			
17	notification-class			O ²			
166	life-safety-alarm-values			O ²			
7	alarm-values			O ²			
39	fault-values			O ²			
35	event-enable			O ²			
0	acked-transitions			O ²			
72	notify-type			O ²			
130	event-time-stamps			O ²			
163	silenced	R					
161	operation-expected	R					
158	maintenance-required			O			
162	setting			O			
156	direct-reading			O ³			
117	units			O ³			
159	member-of			O			
168	profile-name			O			

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

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

³ 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 ¹					
164	tracking-value			O			
28	description			O			
31	device-type			O			
111	status-flags	R					
36	event-state	R					
103	reliability	R ¹					
81	out-of-service	R					
160	mode		W				
175	accepted-modes	R					
113	time-delay			O ²			
17	notification-class			O ²			
166	life-safety-alarm-values			O ²			
7	alarm-values			O ²			
39	fault-values			O ²			
35	event-enable			O ²			
0	acked-transitions			O ²			
72	notify-type			O ²			
130	event-time-stamps			O ²			
163	silenced	R					
161	operation-expected	R					
158	maintenance-required			O			
165	zone-members	R					
159	member-of			O			
168	profile-name			O			

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

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

Load Control

BACnet Standard				StruxureWare Device			
Load Control							
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal device property name	Readable	Writable
75	object-identifier	R			Object ID	P	
77	object-name	R			BACnet name	P	P
79	object-type	R			BACnet type	P	
28	description			O	Description	P	P
222	state-description			O	State description	P	P
85	present-value	R			Value	P	P
111	status-flags	R			Status flags	P	
36	event-state	R			Event state	P	
103	reliability			O	Reliability	P	
218	requested-shed-level		W				
142	start-time		W	O ^{1,2}			
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 ¹				
220	shed-level-descriptions	R					
17	notification-class			O ²	BACnet notification	P	P
35	event-enable			O ²	Event enable	P	P
0	acked-transitions			O ²	Acknowledged transitions	P	
72	notify-type			O ²	Notify type	P	P
130	event-time-stamps			O ²	To-off-normal time To-fault time To-normal time	P	
168	profile-name			O	Profile name	P	

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

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

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

Loop

BACnet Standard				StruxureWare Device			
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 ¹	Proportional constant	R	W
94	proportional-constant-units			O ¹	Unit	R	W
49	integral-constant			O ²	Integral constant	R	W
50	integral-constant-units			O ²	Unit	R	W
26	derivative-constant			O ³	Derivative constant	R	W
27	derivative-constant-units			O ³	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 ⁴	COV increment	P	P
113	time-delay			O ⁵	Time delay (s)	R	W
17	notification-class			O ⁵	BACnet notification	R	W

Loop (continued)

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

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 the object supports COV reporting.

⁵ These properties are required if the object supports intrinsic reporting.

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

Multi-state Input

BACnet Standard				StruxureWare Device			
Multi-state 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 ¹			Value	R	W
28	description			O	Description	R	W
31	device-type			O	Device type	P	P
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O ²	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 ³	Time delay (s)	R	W
17	notification-class			O ³	BACnet notification	R	W
7	alarm-values			O ³	Is alarm value	R	W
39	fault-values			O ³	Is fault value	R	W
35	event-enable			O ³	Event enable	R	W
0	acked-transitions			O ³	Acknowledged transitions	R	
72	notify-type			O ³	Notify type	R	W
130	event-time-stamps			O ³	To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile name	P	

¹ This property is required to be writable when out-of-service is TRUE.

² This property shall be required if fault-values is present.

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

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

Multi-state Output

BACnet Standard				StruxureWare Device			
Multi-state 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	P	P
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	P	
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 ¹	Time delay	P	P
17	notification-class			O ¹	BACnet notification	P	P
40	feedback-value			O ¹	Feedback value	P	P
35	event-enable			O ¹	Event enable	P	P
0	acked-transitions			O ¹	Acknowledged transitions	P	
72	notify-type			O ¹	Notify type	P	P
130	event-time-stamps			O ¹	To-off-normal time To-fault time To-normal time	P	
168	profile-name			O	Profile name	P	

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

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

Multi-state Value

BACnet Standard				StruxureWare Device			
Multi-state 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 ¹			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 ²	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 ³	Command Priority Levels	R	
104	relinquish-default			O ³	Relinquish default	R	W
113	time-delay			O ⁴	Time delay (s)	R	W
17	notification-class			O ⁴	BACnet notification	R	W
7	alarm-values			O ⁴	Is alarm value	R	W
39	fault-values			O ⁴	Is fault value	R	W
35	event-enable			O ⁴	Event enable	R	W
0	acked-transitions			O ⁴	Acknowledged transitions	R	
72	notify-type			O ⁴	Notify type	R	W
130	event-time-stamps			O ⁴	To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile name	P	

¹ 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.

² This property shall be required if fault-values is present.

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

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

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

Notification Class

BACnet Standard				StruxureWare Device			
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	R	W
					Priority-to-fault		
					Priority-to-normal		
1	ack-required	R			Acknowledgement required	R	W
102	recipient-list	R			Recipient rules	R	W
168	profile-name			O	Profile name	P	

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

Program

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

¹ If one of the optional properties, Reason_For_Halt or description_Of_Halt, is present, then both of these properties shall be present.

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

Pulse Converter

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

¹ This property is required to be writable when out-of-service is TRUE.
² These properties are required if Count_Before_Change is writable.
³ These properties are required if the object supports COV reporting.
⁴ These properties are required if the object supports intrinsic reporting.

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

Schedule

BACnet Standard				StruxureWare Device			
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	
28	description			O	Description	R	W
32	effective-period	R			Effective period	R	W
123	weekly-schedule			O ¹	Weekly	R	W
174	schedule-default	R			Default value	R	W
32	exception-schedule			O ¹	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	P	
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	

¹ At least one of these properties is required.

Note: P 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

BACnet Standard				StruxureWare Device			
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 ^{1,2}	Start time	R	W
143	stop-time			O ^{1,2}	Stop time	R	W
132	log-device-object-property			O ¹	Log device object property	R	W
134	log-interval			O ^{1,2}	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 ³	Notification threshold	R	W
140	records-since-notification			O ³	Records since notification	R	
173	last-notify-record			O ³	Last notify record	R	
36	event-state	R			Event state	R	
17	notification-class			O ³	BACnet notification	R	W
35	event-enable			O ³	Event enable	R	W
0	acked-transitions			O ³	Acknowledged transitions	R	
72	notify-type			O ³	Notify type	R	W
130	event-time-stamps			O ³	To-off-normal time To-fault time To-normal time	R	
168	profile-name			O	Profile name	P	
197	logging-type	R			Logging type	P	P
193	align-intervals			O ⁴	Align intervals	P	P

Trend Log (continued)

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

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

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

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

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

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

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 ¹			
143	stop-time			O ¹			
132	log-device-object-property	R					
197	logging-type	R					
134	log-interval	R ²					
193	align-intervals			O ³			
195	interval-offset			O ³			
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			<input type="radio"/> ⁴			
140	records-since-notification			<input type="radio"/> ⁴			
173	last-notify-record			<input type="radio"/> ⁴			
17	notification-class			<input type="radio"/> ⁴			
35	event-enable			<input type="radio"/> ⁴			
0	acked-transitions			<input type="radio"/> ⁴			
72	notify-type			<input type="radio"/> ⁴			
130	event-time-stamps			<input type="radio"/> ⁴			
168	profile-name			<input type="radio"/>			

¹ If present, these properties are required to be writable.

² If present, this property is required to be writable when Logging_Type has the value POLLED.

³ These properties are required to be present if the object supports clock-aligned logging.

⁴ 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.

Object Identifier and Name Restrictions

The instance number portion of the object-identifier property has a restricted range, which depends to some extent on the object type. The following table provides the valid range of instance numbers.

Object Name	Minimum	Maximum
Device	1	4194302
File ¹	1	1
All others	1	4194302

¹ Only one File object exists (for backup and restore) and users do not create this object type.

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, 31st day of February.