

# StruxureWare™ Building Operation

b3xxx Series



b3

- Programmable
- BACnet Advanced Application Controller (B-AAC)

## Protocol Implementation Conformance Statement

Date	April 19, 2013
Vendor name	Schneider Electric
Vendor ID	10
Website	<a href="http://www.Schneider-Electric.com/buildings">www.Schneider-Electric.com/buildings</a>

Product name	Continuum
Product model number	b3xxx Series
Application software version	N/A

Firmware revision	4.5
Base ASHRAE standard	135-2004-d,e,f
BACnet Protocol version	1
BACnet Protocol revision	6

### Product description

The b3xxx Series of programmable controllers are BACnet Advanced Application Controllers (B-AAC).

The models are functionally similar but have different input and output capabilities. See [b3 Models Matrix Table](#).

## Device Profile Support

### Controller Profile

BACnet Building Controller (B-BC)	
BACnet Advanced Application Controller (B-AAC)	X
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)	
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		Hardware dependent	
Ethernet - ISO 8802_3			
MS/TP master	X	9600 kbaud	
	X	19.2 kbaud	
	X	38.4 kbaud	
	X	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)	
BBMD supports registration by foreign device	
Device support registration as foreign device	

## Character Sets Supported

Character Sets	Supported
ANSI X3.4	X
ISO 8859-1	X
ISO 10646 (USC-2)	
ISO 10646 (UCS-4)	
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 <sup>1</sup>	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					
DS-RPM-B	ReadPropertyMultiple-B				x	x				x
DS-RPC-A	ReadPropertyConditional-A									
DS-RPC-B	ReadPropertyConditional-B									x
DS-WP-A <sup>1</sup>	WriteProperty-A	x	x	x	x					x
DS-WP-B	WriteProperty-B				x	x	x	x		x
DS-WPM-A	WritePropertyMultiple-A	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						
DS-M-A	Modify-A		x	x						
DS-AV-A	Advanced View-A	x								
DS-AM-A	Advanced Modify-A	x								

<sup>1</sup> Not supported by b3885, b3885-V, and b3887.

# 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							
AE-N-I-B	Notification Internal-B				x	x				x
AE-N-E-B	Notification External-B									
AE-ACK-A	ACK-A	x	x							
AE-ACK-B	ACK-B				x	x				x
AE-ASUM-A	Summary-A									
AE-ASUM-B	Alarm Summary-B									
AE-ESUM-A	Enrollment Summary-A									
AE-ESUM-B	Enrollment Summary-B				x					
AE-INFO-A	Information-A									
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							
AE-VN-A	View Notification-A		x	x						
AE-VM-A	View Modify-A		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		B-SS
SCHED-I-B	Scheduling - Internal-B					x				x
SCHED-E-B	Scheduling - External-B				x					
SCH-VM-A	Scheduling - View Modify		x							
SCH-AVM-A	Scheduling - Advanced View Modify	x								
SCHED-WS-A	Scheduling - Weekly Schedule-A									
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									
T-ATR-A	Automated Trend Retrieval-A									
T-ATR-B <sup>1</sup>	Automated Trend Retrieval-B				x					x
T-V-A	View-A		x							
T-A-A	Archiving-A									
T-AVM-A	Advanced View and Modify-A	x								

<sup>1</sup> Not supported by b3885, b3885-V, and b3887.

**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 <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								
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									
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								
DM-RD-B	ReinitializeDevice-B				x	x	x			x
DM-BR-A	Backup and Restore-A	x								
DM-BR-B <sup>2</sup>	Backup and Restore-B				x					x
DM-R-A	Restart-A									
DM-R-B	Restart-B									
DM-LM-A	List Manipulation-A									

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

<sup>2</sup> A single stream-based file object is provided to support Backup and Restore. Record-based access is *not* supported. The file has a proprietary format, which is produced by the controller during a backup operation. Any attempt to write the file using data not obtained by reading it will result in an error.



## BACnet Interoperability Building Blocks (BIBBs) Support

### Device Management (continued)

BIBB	Description	BACnet Standard							Product Conformance	
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA		B-SS
DM-LM-B	List Manipulation-B									
DM-OCD-A	Object Creation and Deletion-A	x								
DM-OCD-B	Object Creation and Deletion-B									x
DM-VT-A	Virtual Terminal-A									
DM-VT-B	Virtual Terminal-B									
DM-ANM-A	Automatic Network Mapping-A	x								
DM-ADM-A	Automatic Device Mapping-A	x								
DM-ATS-A	Automatic Time Synchronization									
DM-MTS-A	Manual Time Synchronization-A	x	x							

## 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									

## Supported BACnet Object Types

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

<sup>1</sup> Except for Device and File, instances of all supported object types can be created, deleted and configured using CyberStation.

## Access Credential

BACnet Standard Access Credential					StruxureWare Device		
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 <sup>1</sup>			
319	uses-remaining			O			
244	absentee-limit			O <sup>1</sup>			
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			

<sup>1</sup> If this property is present, then the property Last\_Use\_Time shall also be present.

## Access Door

BACnet Standard					StruxureWare Device		
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			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
72	notify-type			<input type="radio"/> <sup>3</sup>			
130	event-time-stamps			<input type="radio"/> <sup>3</sup>			
168	profile-name			<input type="radio"/>			

<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.

## Access Point

BACnet Standard				StruxureWare Device			
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 <sup>1</sup>			
259	authentication-policy-names			O <sup>1</sup>			
261	authentication-mode	R					
326	verification-time			O			
282	lockout			O <sup>2</sup>			
283	lockout-relinquish-time			O <sup>2</sup>			
273	failed-attempts			O			
272	failed-attempt-events			O			
285	max-failed-attempts			O <sup>3</sup>			
274	failed-attempts-time			O <sup>3</sup>			
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					



## Access Point (continued)

BACnet Standard				StruxureWare Device			
ID	BACnet property name	Required	Required	Optional	Internal Device property name	Readable	Writable
		Readable	Writable			Readable	Writable
322	access-event-tag	R					
250	access-event-time	R					
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 <sup>4</sup>			
309	transation-notification-class			O			
245	access-alarm-events			O <sup>4</sup>			
251	access-transaction-events			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>4</sup> If present-value is commandable, then both of these properties shall be present.

## Access Right

BACnet Standard				StruxureWare Device			
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			
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		
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 <sup>1, 3, 4</sup>			
292	occupancy-count-enable			O <sup>3, 4</sup>			
176	adjust-value			O <sup>3, 4, 5</sup>			
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 <sup>2</sup>			
268	entry-points	R					
269	exit-points	R					
113	time-delay			O <sup>3</sup>			
17	notification-class			O <sup>3</sup>			
7	alarm-values			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>			
130	event-time-stamps			O <sup>3</sup>			
168	profile-name			O			

## Access Zone (continued)

BACnet Standard					StruxureWare Device				
ID	BACnet property name	Required	Readable	Required	Writable	Optional	Internal Device property name	Readable	Writable
72	notify-type					<input type="radio"/> <sup>3</sup>			
130	event-time-stamps					<input type="radio"/> <sup>3</sup>			
168	profile-name					<input type="radio"/>			

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

<sup>2</sup> If this property is present, then Passback\_Mode shall be present.

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

<sup>4</sup> These properties are required if the object supports occupancy counting.

<sup>5</sup> 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		
77	object-name	R			BACnet name		
79	object-type	R			BACnet type		
85	present-value	R <sup>1</sup>			Value		
28	description			O	Description		
31	device-type			O	Device type		
111	status-flags	R			Status flags		
36	event-state	R			Event state		
103	reliability			O	Reliability		
81	out-of-service	R			Out of service		
186	scale	R					
117	units	R					
188	prescale			O			
65	max-pres-value	R			Maximum value		
192	value-change-time			O <sup>2</sup>	Value change time		
190	value-before-change			O <sup>2,3</sup>	Value before change		
191	value-set			O <sup>2,3</sup>	Value set		
184	logging-record			O			
183	logging-object			O			
186	pulse-rate			O <sup>1,4</sup>	Pulse rate		
45	high-limit			O <sup>4</sup>	Upper limit		
59	low-limit			O <sup>4</sup>	Lower limit		
182	limit-monitoring-interval			O <sup>4</sup>	Limit Monitoring interval		
17	notification-class			O <sup>4</sup>	BACnet notification		
113	time-delay			O <sup>4</sup>	Time delay		
52	limit-enable			O <sup>4</sup>	Limit enable		
35	event-enable			O <sup>4</sup>	Event enable		

## Accumulator (continued)

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

<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.

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

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



## 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	
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		
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability		
81	out-of-service	R			Out of service	R	W
117	units	R			Unit	R	W
69	min-pres-value			O	Minimum value		
65	max-pres-value			O	Maximim value		
106	resolution			O	Resolution		
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		
17	notification-class			O <sup>2</sup>	BACnet notification		
45	high-limit			O <sup>2</sup>	Upper limit		
59	low-limit			O <sup>2</sup>	Lower limit		
25	deadband			O <sup>2</sup>	Deadband		
52	limit-enable			O <sup>2</sup>	Limit enable		
35	event-enable			O <sup>2</sup>	Event enable		
0	acked-transitions			O <sup>2</sup>	Acknowledged transitions		
72	notify-type			O <sup>2</sup>	Notify type		
130	event-time-stamps			O <sup>2</sup>	To-off-normal time To-fault time To-normal time		
168	profile-name			O	Profile-name		

<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.

## Analog Value

BACnet Standard Analog Value					StruxureWare Device 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>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		
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		
17	notification-class			O <sup>3</sup>	BACnet notification		
45	high-limit			O <sup>3</sup>	Upper limit		
59	low-limit			O <sup>3</sup>	Lower limit		
25	deadband			O <sup>3</sup>	Deadband		
52	limit-enable			O <sup>3</sup>	Limit enable		
35	event-enable			O <sup>3</sup>	Event enable		
0	acked-transitions			O <sup>3</sup>	Acknowledged transitions		
72	notify-type			O <sup>3</sup>	Notify type		
130	event-time-stamps			O <sup>3</sup>	To-off-normal time To-fault time To-normal time		
168	profile-name			O	Profile name		

<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> 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.

## 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		
77	object-name	R			BACnet name		
79	object-type	R			BACnet type		
136	minimum-value	R			Minimum value		
150	minimum-value-timestamp			O	Minimum value timestamp		
125	average-value	R			Average value		
151	variance-value			O	Variance value		
135	maximum-value	R			Maximum value		
149	maximum-value-timestamp			O	Maximum value timestamp		
28	description			O	Description		
124	attempted-samples	R	W <sup>1</sup>		Attempted samples		
146	valid-samples	R			Valid samples		
78	object-property-reference	R <sup>1</sup>			Object property reference		
147	window-interval		W <sup>1</sup>		Window interval		
148	window-samples		W <sup>1</sup>		Window samples		
168	profile-name			O	Profile name		

<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.

## 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	
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		
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability		
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		
15	change-of-state-count			O <sup>3</sup>	Change of state count		
115	time-of-state-count-reset			O <sup>3</sup>	Time of state count reset		
33	elapsed-active-time			O <sup>4</sup>	Elapsed active time		
114	time-of-active-time-reset			O <sup>4</sup>	Time of active time reset		
113	time-delay			O <sup>5</sup>	Time delay		
17	notification-class			O <sup>5</sup>	BACnet notification		
6	alarm-value			O <sup>5</sup>	Alarm value		
35	event-enable			O <sup>5</sup>	Event enable		
0	acked-transitions			O <sup>5</sup>	Acknowledged transitions		

## 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
72	notify-type			O <sup>5</sup>	Notify type		
130	event-time-stamps			O <sup>5</sup>	To-off-normal time To-fault time To-normal time		
168	profile-name			O	Profile name		

<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.

## 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	
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		
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability		
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		
15	change-of-state-count			O <sup>2</sup>	Change of state count		
115	time-of-state-count-reset			O <sup>2</sup>	Time of state count reset		
33	elapsed-active-time			O <sup>3</sup>	Elapsed active time		
114	time-of-active-time-reset			O <sup>3</sup>	Time of active time reset		
66	minimum-off-time			O	Minimum off time		
67	minimum-on-time			O	Minimum on time		
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		
17	notification-class			O <sup>4</sup>	BACnet notification		
6	alarm-value			O <sup>4</sup>	Alarm value		
35	event-enable			O <sup>4</sup>	Event enable		
0	acked-transitions			O <sup>4</sup>	Acknowledged transitions		
72	notify-type			O <sup>4</sup>	Notify type		
130	event-time-stamps			O <sup>4</sup>	To-off-normal time To-fault time To-normal time		
168	profile-name			O	Profile name		

<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.

## 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		
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		
15	change-of-state-count			O <sup>3</sup>	Change of state count		
115	time-of-state-count-reset			O <sup>3</sup>	Time of state count reset		
33	elapsed-active-time			O <sup>4</sup>	Elapsed active time		
114	time-of-active-time-reset			O <sup>4</sup>	Time of active time reset		
66	minimum-off-time			O	Minimum off time		
67	minimum-on-time			O	Minimum on time		
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		
17	notification-class			O <sup>6</sup>	BACnet notification		
6	alarm-value			O <sup>6</sup>	Alarm value		
35	event-enable			O <sup>6</sup>	Event enable		
0	acked-transitions			O <sup>6</sup>	Acknowledged transitions		



**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			<input type="radio"/> <sup>6</sup>	Notify type		
130	event-time-stamps			<input type="radio"/> <sup>6</sup>	To-off-normal time To-fault time To-normal time		
168	profile-name			<input type="radio"/>	Profile time		

<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.

## 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	
79	object-type	R			BACnet type		
28	description			O	Description	R	W
46	present-value	R			Inactive text	R	W
4	date-list	R			Active text	R	W
168	profile-name			O	Profile name		

**Note:** Dates are restricted to years 1989-2105. See [Interpretation of Wildcards in Dates](#).

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

**Note:** Action is restricted to reference objects in the same device.

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	
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	W
24	daylight-savings-status			O <sup>4</sup>	Daylight savings	R	W

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		O	Number of APDU retries	R	
55	list-of-session-keys			O			
116	time-synchronization-recipients			O <sup>5</sup>	Time synchronization recipients		
64	max-master			O <sup>6</sup>	Maximum master <sup>13</sup>	R	W
63	max-info-frames			O <sup>6</sup>	Maximum information frames <sup>13</sup>	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>		R	
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		
196	last-restart-session						
203	time-of-device-restart			O			
202	restart-notification-recipients			O			
206	utc-time-synchronization-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	Optional	Internal device property name	Readable	Writable
			Readable	Writable				
195	interval-offset							
515	proprietary-property-515				O	Serial number	R	
517	proprietary-property-517				O	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.
- <sup>13</sup> These properties are found in two locations: on the MSTP network object of the BACnet Interface (Automation Server) and on device objects (for proxies).
- <sup>14</sup> This property is not supported by Workstation.

Notes:

- Infinity\_Path and Serial\_Number are proprietary properties.
- Max\_Info\_Frames is restricted to the range 1..127.
- Number\_Of\_APDU\_Retries is restricted to the range 0..255.

## 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		

**Notes:**

- Event\_Type limited to Change\_Of\_State, Change\_Of\_Value, Floating\_Limit, Out\_Of\_Range and Buffer\_Ready.
- Object\_Property\_Reference must reference Present\_Value of point in same controller.

## 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.



**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		
43	file-type	R			File type	R	
42	file-size	R <sup>1</sup>			File size	R	W <sup>2</sup>
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		
168	profile-name			O	Profile name		

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

**Note:** File\_Size is writable when in Restore mode. Values limited to zero and current file size.

**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.

## 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		
77	object-name	R			BACnet name		
79	object-type	R			BACnet type		
28	description			O	Description		
222	state-description			O	State description		
85	present-value	R			Value		
111	status-flags	R			Status flags		
36	event-state	R			Event state		
103	reliability			O	Reliability		
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		
35	event-enable			O <sup>2</sup>	Event enable		
0	acked-transitions			O <sup>2</sup>	Acknowledged transitions		
72	notify-type			O <sup>2</sup>	Notify type		
130	event-time-stamps			O <sup>2</sup>	To-off-normal time To-fault time To-normal time		
168	profile-name			O	Profile name		

<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.

# 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
50	integral-constant-units					O <sup>2</sup>	Unit	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		
113	time-delay					O <sup>5</sup>	Time delay (s)		

Loop (continued)

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

- <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:** Present\_Value is writable only when Out\_Of\_Service is true.

## 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	W
28	description			O	Description	R	W
31	device-type			O	Device type		
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O <sup>2</sup>	Reliability		
81	out-of-service	R			Out of service	R	W
74	number-of-states	R			Number of states	R	
110	state-text			O	Label	R	
113	time-delay			O <sup>3</sup>	Time delay (s)		
17	notification-class			O <sup>3</sup>	BACnet notification		
7	alarm-values			O <sup>3</sup>	Is alarm value		
39	fault-values			O <sup>3</sup>	Is fault value		
35	event-enable			O <sup>3</sup>	Event enable		
0	acked-transitions			O <sup>3</sup>	Acknowledged transitions		
72	notify-type			O <sup>3</sup>	Notify type		
130	event-time-stamps			O <sup>3</sup>	To-off-normal time To-fault time To-normal time		
168	profile-name			O	Profile name		

<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.



## 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	
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		
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability		
81	out-of-service	R			Out of service	R	W
74	number-of-states	R			Number of states	R	
110	state-text			O	Label	R	
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		
17	notification-class			O <sup>1</sup>	BACnet notification		
40	feedback-value			O <sup>1</sup>	Feedback value		
35	event-enable			O <sup>1</sup>	Event enable		
0	acked-transitions			O <sup>1</sup>	Acknowledged transitions		
72	notify-type			O <sup>1</sup>	Notify type		
130	event-time-stamps			O <sup>1</sup>	To-off-normal time To-fault time To-normal time		
168	profile-name			O	Profile name		

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

## 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		
81	out-of-service	R			Out of service	R	W
74	number-of-states	R			Number of states	R	
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)		
17	notification-class			O <sup>4</sup>	BACnet notification		
7	alarm-values			O <sup>4</sup>	Is alarm value		
39	fault-values			O <sup>4</sup>	Is fault value		
35	event-enable			O <sup>4</sup>	Event enable		
0	acked-transitions			O <sup>4</sup>	Acknowledged transitions		
72	notify-type			O <sup>4</sup>	Notify type		
130	event-time-stamps			O <sup>4</sup>	To-off-normal time To-fault time To-normal time		
168	profile-name			O	Profile name		

<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:** Cyberstation can configure the State\_Text.

## Notification Class

BACnet Standard					StruxureWare Device		
Notification Class					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	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		

# 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	R	
77	object-name	R			BACnet name	R	
79	object-type	R			BACnet type	R	
92	program-state	R			Program state	R	
90	program-change		W		Program change	R	W
100	reason-for-halt			O <sup>1</sup>	Reason for halt		
29	description-of-halt			O <sup>1</sup>	Description for halt		
91	program-location			O	Program location		
28	description			O	Description	R	W
111	status-flags	R			Status flags	R	
103	reliability			O	Reliability		
81	out-of-service	R			Out of service	R	W
168	profile-name			O	Profile name		

<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:** Read\_Property of Program\_Change always return Ready.

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

<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.

## 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	W
168	profile-name			O	Profile name		
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)		
519	proprietary-property-519				Time to next transition (min)		
520	proprietary-property-520				Time to following transition (min)		
521	proprietary-property-521				Next transition value		
522	proprietary-property-522				Following transition value		

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

### Notes:

- In Effective\_Period and Exception\_Schedule, dates are restricted to years 1989-2105. See [Interpretation of Wildcards in Dates](#).
- List\_Of\_Obj\_Property\_References is limited to internal objects.
- Present\_Value is writable only when Out\_Of\_Service is true.
- Previous\_Transition\_Time, Next\_Transition\_Time and Following\_Transition\_Time are proprietary properties. See [Support for Optimum Start-Stop](#).

**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					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		
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		
140	records-since-notification			O <sup>3</sup>	Records since notification		
173	last-notify-record			O <sup>3</sup>	Last notify record		
36	event-state	R			Event state	R	
17	notification-class			O <sup>3</sup>	BACnet notification		
35	event-enable			O <sup>3</sup>	Event enable		
0	acked-transitions			O <sup>3</sup>	Acknowledged transitions		
72	notify-type			O <sup>3</sup>	Notify type		
130	event-time-stamps			O <sup>3</sup>	To-off-normal time To-fault time To-normal time		
168	profile-name			O	Profile name		
197	logging-type	R			Logging type		
193	align-intervals			O <sup>4</sup>	Align intervals		



## 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			<input type="radio"/> <sup>4</sup>	Interval offset		
205	trigger			<input type="radio"/>	Trigger		

<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.

### Notes:

- Log\_Device\_Object\_Property is limited to reference objects in the same device.
- In Start\_Time and Stop\_Time, dates are restricted to years 1989-2105.
- Buffer\_Size is required to be at least 2 but is otherwise limited only by available memory.

## 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			<input type="radio"/> <sup>4</sup>			
140	records-since-notification			<input type="radio"/> <sup>4</sup>			
173	last-notify-record			<input type="radio"/> <sup>4</sup>			
17	notification-class			<input type="radio"/> <sup>4</sup>			
35	event-enable			<input type="radio"/> <sup>4</sup>			
0	acked-transitions			<input type="radio"/> <sup>4</sup>			
72	notify-type			<input type="radio"/> <sup>4</sup>			
130	event-time-stamps			<input type="radio"/> <sup>4</sup>			
168	profile-name			<input type="radio"/>			

<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.

## b3xxx Models Matrix Table

The following table lists the b3 models along with their similar but distinct input and output capabilities.

Model Name	Number & Type of Inputs	Number & Type of Outputs	Expansion Modules Support	Smart Sensor Support
b3608	8 Universal Inputs	-	No	No
b3624	24 Universal Inputs	-	No	No
b3800	8 Universal Inputs	8 Digital Outputs	No	Yes
b3804	8 Universal Inputs	4 Analog Outputs, 4 Digital Outputs	No	Yes
b3810	8 Universal Inputs	8 Digital Outputs	Yes	Yes
b3814	8 Universal Inputs	4 Analog Outputs, 4 Digital Outputs	Yes	Yes
b3850	1 Flow Sensor 4 Universal Inputs	4 Digital Outputs	Yes	Yes
b3851	4 Universal Inputs	4 Digital Outputs	Yes	Yes
b3853	2 Flow Sensors 4 Universal Inputs	4 Digital Outputs	Yes	Yes
b3865	1 Flow Sensor 4 Universal Inputs	1 Actuator Output, 3 Digital Outputs	No	Yes
b3865-V	1 Flow Sensor 4 Universal Inputs	1 Actuator Output, 3 Digital Outputs	No	Yes
b3866	1 Flow Sensor 4 Universal Inputs	1 Actuator Output, 2 Analog Outputs, 3 Digital Outputs	No	Yes
b3866-V	1 Flow Sensor 4 Universal Inputs	1 Actuator Output, 2 Analog Outputs, 3 Digital Outputs	No	Yes
b3867	4 Universal Inputs	2 Analog Outputs, 5 Digital Outputs	No	Yes
b3885	1 Flow Sensor 2 Universal Inputs	1 Actuator Output, 2 Digital Outputs	No	No
b3885-V	1 Flow Sensor 2 Universal Inputs	1 Actuator Output, 2 Digital Outputs	No	No
b3887	3 Universal Inputs	5 Digital Outputs	No	Yes
b3920	16 Universal Inputs	8 Analog Outputs, 8 Digital Outputs	Yes	Yes

## Restrictions on Object Identifiers and Names

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 lists the valid range of the instance numbers.

Object Type	Minimum	Maximum
Device	1	4194302
File <sup>1</sup>	1	1
All others	1	200

<sup>1</sup> Only one file object exists (for backup and restore) and users do not create objects of this type.

**Notes:** For all object types, the Object\_Name is limited to 16 characters. The first character must be alphabetic and the remaining characters must be alphabetic, numeric, or one of '\_' or '.'.

## Vendor Specific Implementations

### Serial Number Property

Every Continuum device has a unique serial number, assigned at the factory. 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 Plain English programming, to optimize the start and stop times for heating and cooling systems 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.

These properties are unsigned integer values, each giving a date and time expressed as the number of seconds after midnight, January 1, 1970. The Plain English language, which is used to specify the behavior of Program objects, includes the ability to compare these times with the present time, and to compute time intervals.

Each transition indicates a scheduled change in the value of the Schedule's Present\_Value attribute. When determining a transition, time-value pairs that do not change the value are not considered transitions.

### 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.

## Infinity Path Property

bCX1 devices can also be accessed via the proprietary Infinity protocol, which requires specific path information to access each device. Accordingly, the Infinity\_Path property (identifier 517) of the Device object provides an unsigned integer value composed as follows:

Byte Position	BCX 1 controllers	b3xxx controllers
Lowest	ACC Net ID of the device	ACC Net ID of the parent bCX1 device [bCX1 or other BACnet router]
Second	0	Commport Id [in the parent bCX1] of the MSTP network
Third	0	MSTP Mac address of the controller

### 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.