

StruxureWare™ Building Operation

ES PICS



Enterprise Server

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

Product Implementation Conformance Statement

Date	October, 2015
Vendor name	Schneider Electric
Vendor ID	10
Website	www.schneider-electric.com/buildings
Range name	StruxureWare Building Operation
Product name	StruxureWare Enterprise Server
Product model number	SW-ES
Application software version	N/A
Firmware revision	1.7
Base ASHRAE standard	135-2004-d,e,f
BACnet Protocol version	1
BACnet Protocol revision	6

Product description

The Enterprise Server is a native BACnet/IP protocol operator workstation and controller with a built-in web server. The Enterprise Server also serves as a BACnet/IP Broadcast Management Device (BBMD).

Note: Requires StruxureWare Workstation P/N SXWSWORK00001 and SXWSWORK00002 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	Hardware dependent	X
Ethernet - ISO 8802_3			
MS/TP master			
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 (UCS-2)	X
ISO 10646 (UCS-4)	X
ISO 10646 (UTF-8)	
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
SCHED-VM-A	Scheduling - View Modify		x							x
SCHED-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 - Readable-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-OWS	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									

Supported BACnet Object Types

		BACnet Standard							Product Conformance			
ID	Description	B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	Supported	Creatable	Deletable
32	Access Credential											
30	Access Door											
33	Access Point											
34	Access Rights											
35	Access User											
36	Access Zone											
23	Accumulator	P	P							P	P	P
0	Analog Input	P	P							x	P	P
1	Analog Ouput	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
39	BitString Value											
6	Calendar	P	P							x	x	x
7	Command	P	P							P	P	P
37	Credential Data Input											
44	DateTime Value									P	P	P
8	Device	x	x	x	x	x	x	x	x	x		
9	Event Enrollment	P	P							x	x	x
25	Event Log											
10	File	P								x	P	P
26	Global Group											
11	Group											
45	Integer Value									P	P	P
46	Large Analog Value									P	P	P
21	Life Safety Point											
22	Life Safety Zone											
28	Load Control	P	P							P	P	P
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

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
19	Multi-state Value	P	P							x	x	x
15	Notification Class	P	P							x	x	x
47	Octet String Value											
48	Positive Integer Value									P	P	P
16	Program	P	P							x	P	P
24	Pulse Converter	P	P							P	P	P
17	Schedule	P	P							x	x	x
40	String	P	P							P	P	P
29	Structured View											
50	Time Value											
20	Trend Log	P	P							x	x	x
27	Trend Log Multiple											

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

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 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			
364	authorization-exemptions			O			
357	reliability-evaluation-inhibit			O			
371	property-list	R					
168	profile-name			O			

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

Access Door

BACnet Standard Access Door					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 ^{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, 5}			
17	notification-class			O ^{3, 5}			
7	alarm-values			O ^{3, 5}			
39	fault-values			O			
35	event-enable			O ^{3, 5}			
0	acked-transitions			O ^{3, 5}			

Access Door (continued)

BACnet Standard Access Door					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
72	notify-type			O ^{3,5}			
130	event-time-stamps			O ^{3,5}			
351	event-message-texts			O ^{4,5}			
352	event-message-texts- config			O ⁵			
353	event-detection- enable			O ^{3,5}			
355	event-algorithm- inhibit-ref			O ⁵			
354	event-algorithm- inhibit			O ^{5,6}			
356	time-delay-normal			O ⁵			
357	reliability-evaluation- inhibit			O			
371	property-list	R					
168	profile-name			O			

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

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

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

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

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

⁶ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

Access Point

BACnet Standard Access Point					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					
	number-of-authentication-policies	R					
289	authentication-policy-list			O ¹			
258	authentication-policy-names			O ¹			
259	authentication-mode	R					
261	verification-time			O			
326	lockout			O ²			
282	lockout-relinquish-time			O			
283	failed-attempts			O			
273	failed-attempt-events			O			
272	max-failed-attempts			O ³			
285	failed-attempts-time			O ³			
274	threat-level			O			
307	occupancy-upper-limit-enforced			O			
298	occupancy-lower-limit-enforced			O			
295	occupancy-count-adjust			O			
291	accompaniment-time			O			
253	access-event	R					
247	access-event-tag	R					
322	access-event-time	R					
250							

Access Point (continued)

BACnet Standard Access Point					StruxureWare Device		
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 ^{4,6}			
309	transation-notification-class			O			
245	access-alarm-events			O ^{4,6}			
251	access-transaction-events			O ^{4,6}			
35	event-enable			O ^{4,6}			
0	acked-transitions			O ^{4,6}			
72	notify-type			O ^{4,6}			
130	event-time-stamps			O ^{4,6}			
351	event-message-texts			O ^{5,6}			
352	event-message-texts-config			O ⁶			
353	event-detection-enable			O ^{4,6}			
355	event-algorithm-inhibit-ref			O ⁶			
354	event-algorithm-inhibit			O ^{6,7}			
357	reliability-evaluation-inhibit			O			
371	property-list	R					
168	profile-name			O			

¹ The size of this array shall equal the value of the Number_Of_Authentication_Policies property.

² This property is required to be present if Lockout_Relinquish_Time is present.

³ If this property is present, then the Failed_Attempts property shall be present.

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

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

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

⁷ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

Access Right

BACnet Standard Access Right					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			
357	reliability-evaluation-inhibit			O			
371	property-list	R					
168	profile-name			O			

Access User

BACnet Standard Access User					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					
357	reliability-evaluation- inhibit			O			
371	property-list	R					
168	profile-name			O			

Access Zone

BACnet Standard Access Zone					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				
296	occupancy-state	R					
111	status-flags	R					
36	event-state	R					
103	reliability	R ¹					
81	out-of-service	R					
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 ^{3,7}			
17	notification-class			O ^{3,7}			
7	alarm-values			O ^{3,7}			
35	event-enable			O ^{3,7}			
0	acked-transitions			O ^{3,7}			

Access Zone (continued)

BACnet Standard Access Zone					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
72	notify-type			O ^{3,7}			
130	event-time-stamps			O ^{3,7}			
351	event-message-texts			O ^{6,7}			
352	event-message-texts- config			O ⁷			
353	event-detection- enable			O ^{3,7}			
355	event-algorithm- inhibit-ref			O ⁷			
354	event-algorithm- inhibit			O ^{7,8}			
356	time-delay-normal			O ⁷			
357	reliability-evaluation- inhibit			O			
371	property-list	R					
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, and shall be present only if, the object supports occupancy counting.

⁵ The Adjust_Value property shall be writable if present.

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

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

⁸ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

Accumulator

BACnet Standard Accumulator					StruxureWare Device		
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 ^{1,4,7}	Pulse rate	P	P
45	high-limit			O ^{4,6}	Upper limit	P	P
59	low-limit			O ^{4,6}	Lower limit	P	P
182	limit-monitoring-interval			O ^{4,7}	Limit Monitoring interval	P	P
17	notification-class			O ^{4,6}	BACnet notification	P	P
113	time-delay			O ^{4,6}	Time delay	P	P
52	limit-enable			O ^{4,6}	Limit enable	P	P
35	event-enable			O ^{4,6}	Event enable	P	P
0	acked-transitions			O ^{4,6}	Acknowledged transitions	P	
72	notify-type			O ^{4,6}	Notify type	P	P
130	event-time-stamps			O ^{4,6}	To-off-normal time To-fault time To-normal time	P	

Accumulator (continued)

BACnet Standard Accumulator					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
351	event-message-texts			O ^{5,6}			
352	event-message-texts-config			O ⁶			
353	event-detection-enable			O ^{4,6}			
355	event-algorithm-inhibit-ref			O ⁶			
354	event-algorithm-inhibit			O ^{6,8}			
356	time-delay-normal			O ⁶			
357	reliability-evaluation-inhibit			O ⁹			
371	property-list	R					
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.

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

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

⁷ If one of these properties is present, then both shall be present.

⁸ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

⁹ If this property is present, then the Reliability property shall be present.

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

Analog Input

BACnet Standard Analog Input					StruxureWare 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	
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 ^{3,5}	Time delay	R	W
17	notification-class			O ^{3,5}	BACnet notification	R	W
45	high-limit			O ^{3,5}	Upper limit	R	W
59	low-limit			O ^{3,5}	Lower limit	R	W
25	deadband			O ^{3,5}	Deadband	R	W
52	limit-enable			O ^{3,5}	Limit enable	R	W
35	event-enable			O ^{3,5}	Event enable	R	W
0	acked-transitions			O ^{3,5}	Acknowledged transitions	R	
72	notify-type			O ^{3,5}	Notify type	R	W
130	event-time-stamps			O ^{3,5}	To-off-normal time To-fault time To-normal time	R	

Analog Input (continued)

BACnet Standard Analog Input					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
351	event-message-texts			O ^{4,5}			
352	event-message-texts-config			O ⁵			
353	event-detection-enable			O ^{3,5}			
355	event-algorithm-inhibit-ref			O ⁵			
354	event-algorithm-inhibit			O ^{5,6}			
356	time-delay-normal			O ⁵			
357	reliability-evaluation-inhibit			O ⁷			
371	property-list	R					
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, and shall be present only if, the object supports COV reporting.

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

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

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

⁶ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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

Analog Output

BACnet Standard Analog Output					StruxureWare 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	
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
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 ^{2,4}	Time delay	R	W
17	notification-class			O ^{2,4}	BACnet notification	R	W
45	high-limit			O ^{2,4}	Upper limit	R	W
59	low-limit			O ^{2,4}	Lower limit	R	W
25	deadband			O ^{2,4}	Deadband	R	W
52	limit-enable			O ^{2,4}	Limit enable	R	W
35	event-enable			O ^{2,4}	Event enable	R	W
0	acked-transitions			O ^{2,4}	Acknowledged transitions	R	
72	notify-type			O ^{2,4}	Notify type	R	W
130	event-time-stamps			O ^{2,4}	To-off-normal time To-fault time To-normal time	R	

Analog Output (continued)

BACnet Standard Analog Output					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
351	event-message-texts			O ^{3,4}			
352	event-message-texts-config			O ⁴			
353	event-detection-enable			O ^{2,4}			
355	event-algorithm-inhibit-ref			O ⁴			
354	event-algorithm-inhibit			O ^{4,5}			
356	time-delay-normal			O ⁴			
357	reliability-evaluation-inhibit			O ⁶			
371	property-list	R					
168	profile-name			O	Profile name	P	

¹ These properties are required if, and shall be present only if, the object supports COV reporting.

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

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

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

⁵ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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

Analog Value

BACnet Standard Analog Value					StruxureWare 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	
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			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 ^{3,6}	Time delay	R	W
17	notification-class			O ^{3,6}	BACnet notification	R	W
45	high-limit			O ^{3,6}	Upper limit	R	W
59	low-limit			O ^{3,6}	Lower limit	R	W
25	deadband			O ^{3,6}	Deadband	R	W
52	limit-enable			O ^{3,6}	Limit enable	R	W
35	event-enable			O ^{3,6}	Event enable	R	W
0	acked-transitions			O ^{3,6}	Acknowledged transitions	R	
72	notify-type			O ^{3,6}	Notify type	R	W
130	event-time-stamps			O ^{3,6}	To-off-normal time To-fault time To-normal time	R	

Analog Value (continued)

BACnet Standard Analog Value					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
351	event-message-texts			O ^{5,6}			
352	event-message-texts- config			O ⁶			
353	event-detection- enable			O ^{3,6}			
355	event-algorithm- inhibit-ref			O ⁶			
354	event-algorithm- inhibit			O ^{6,7}			
356	time-delay-normal			O ⁶			
357	reliability-evaluation- inhibit			O ⁸			
69	min-pres-value			O			
65	max-pres-value			O			
106	resolution			O			
371	property-list	R					
168	profile-name			O	Profile name	P	

¹ These properties are required if, and shall be present only if, Present_Value is commandable.

² These properties are required if, and shall be present only if, the object supports COV reporting.

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

⁴ If Present_Value is commandable, then it is required to be writable. This property is required to be writable when Out_Of_Service is TRUE.

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

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

⁷ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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

Averaging

BACnet Standard Averaging					StruxureWare Device		
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		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
371	property-list	R					
168	profile-name			O	Profile name	P	

¹ If any of these properties are written to using BACnet services, all of the buffer samples shall become invalid, 'Attempted_Samples' shall become zero, 'Valid_Samples' shall become zero, 'Minimum_Value' shall become INF, 'Average_Value' shall become NaN, and 'Maximum_Value' shall become -INF.

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

Binary Input

BACnet Standard Binary Input					StruxureWare 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	
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 ^{5,7}	Time delay	R	W
17	notification-class			O ^{5,7}	BACnet notification	R	W
6	alarm-value			O ^{5,7}	Alarm value	R	W
35	event-enable			O ^{5,7}	Event enable	R	W
0	acked-transitions			O ^{5,7}	Acknowledged transitions	R	
72	notify-type			O ^{5,7}	Notify type	R	W
130	event-time-stamps			O ^{5,7}	To-off-normal time To-fault time To-normal time	R	

Binary Input (continued)

BACnet Standard Binary Input					StruxureWare Device				
ID	BACnet property name	Required	Readable	Required	Writable	Optional	Internal Device property name	Readable	Writable
351	event-message-texts					O ^{6,7}			
352	event-message-texts-config					O ⁷			
353	event-detection-enable					O ^{5,7}			
355	event-algorithm-inhibit-ref					O ⁷			
354	event-algorithm-inhibit					O ^{7,8}			
356	time-delay-normal					O ⁷			
357	reliability-evaluation-inhibit					O ⁹			
371	property-list		R						
168	profile-name					O	Profile name	P	

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

² If one of the optional properties Inactive_Text or Active_Text, is present, then both properties shall be present.

³ If one of the optional properties, Change_Of_State_Time, Change_Of_State_Count, or Time_Of_State_Count_Reset, is present, then all of these properties shall be present.

⁴ If one of the optional properties Elapsed_Active_Time or Time_Of_Active_Time_Reset is present, then both of these properties shall be present.

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

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

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

⁸ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

⁹ If this property is present, then the Reliability property shall be present.

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

Binary Output

BACnet Standard Binary Output					StruxureWare 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	
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
113	time-delay			O ^{4,6}	Time delay	P	P
17	notification-class			O ^{4,6}	BACnet notification	P	P
40	feedback-value			O ⁴	Alarm value	P	P
35	event-enable			O ^{4,6}	Event enable	P	P
0	acked-transitions			O ^{4,6}	Acknowledged transitions	P	

Binary Output (continued)

BACnet Standard Binary Output					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
72	notify-type			O ^{4,6}	Notify type	P	P
130	event-time-stamps			O ^{4,6}	To-off-normal time To-fault time To-normal time	P	
351	event-message-texts			O ^{5,6}			
352	event-message-texts- config			O ⁶			
353	event-detection- enable			O ^{4,6}			
355	event-algorithm- inhibit-ref			O ⁶			
354	event-algorithm- inhibit			O ^{6,7}			
356	time-delay-normal			O ⁶			
357	reliability-evaluation- inhibit			O ⁸			
371	property-list	R					
168	profile-name			O	Profile name	P	

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

² If one of the optional properties Change_Of_State_Time, Change_Of_State_Count, or Time_Of_State_Count_Reset is present, then all of these properties shall be present.

³ If one of the optional properties Elapsed_Active_Time or Time_Of_Active_Time_Reset is present, then both of these properties shall be present.

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

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

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

⁸ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

⁹ If this property is present, then the Reliability property shall be present.

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

Binary Value

BACnet Standard Binary Value					StruxureWare 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	
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 ^{6,8}	Time delay	R	W
17	notification-class			O ^{6,8}	BACnet notification	R	W
6	alarm-value			O ^{6,8}	Alarm value	R	W
35	event-enable			O ^{6,8}	Event enable	R	W
0	acked-transitions			O ^{6,8}	Acknowledged transitions	R	
72	notify-type			O ^{6,8}	Notify type	R	W
130	event-time-stamps			O ^{6,8}	To-off-normal time To-fault time To-normal time	R	

Binary Value (continued)

BACnet Standard Binary Value					StruxureWare Device				
ID	BACnet property name	Required	Readable	Required	Writable	Optional	Internal Device property name	Readable	Writable
351	event-message-texts					O ^{7,8}			
352	event-message-texts-config					O ⁸			
353	event-detection-enable					O ^{6,8}			
355	event-algorithm-inhibit-ref					O ⁸			
354	event-algorithm-inhibit					O ^{8,9}			
356	time-delay-normal					O ⁸			
357	reliability-evaluation-inhibit					O ¹⁰			
371	property-list		R						
168	profile-name					O	Profile name	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 one of the optional properties 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 one of the optional properties Elapsed_Active_Time or Time_Of_Active_Time_Reset is present, then both of these properties shall be present.

⁵ These properties are required if, and shall be present only if, Present_Value is commandable.

⁶ These properties are required if the object supports intrinsic reporting.

⁷ This property, if present, is required to be read-only.

⁸ These properties shall be present only if the object supports intrinsic reporting.

⁹ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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

Calendar

BACnet Standard Calendar					StruxureWare 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	
28	description			O	Description	R	W
85	present-value	R			Value	R	
23	date-list	R			Date list	R	W
371	property-list	R					
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 Command					StruxureWare Device		
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			
371	property-list	R					
168	profile-name			O	Profile name	P	

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

DateTime Value

BACnet Standard DateTime Value					StruxureWare 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	
28	description			O	Description	R	W
85	present-value	R ¹			Value	R	W
111	status-flags	R			Status flags	R	
36	event-state			O	Event state	R	
103	reliability			O	Reliability	P	
81	out-of-service			O	Out of service	R	W
87	priority-array			O ²	Command Priority Levels	R	
104	relinquish-default			O ²	Relinquish default	R	W
344	Is-UTC			O	Is UTC	P	
357	reliability-evaluation- inhibit			O ³			
371	property-list	R					
168	profile-name			O	Profile name	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 These properties are required if, and shall be present only if, Present_Value is commandable.

³ If this property is present, then the Reliability property shall be present.

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

Device

BACnet Standard Device					StruxureWare 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	
167	max-segments-accepted			O ¹	Maximum segments accepted	R	
122	vt-classes-supported			O ²			
5	active-vt-sessions			O ²			
57	local-time			O ^{3,4,15}	Local time	R	
56	local-date			O ^{3,4,15}	Local date	R	
119	utc-offset			O ⁴	UTC offset (min)	R	
24	daylight-savings-status			O ⁴	Daylight savings	R	
10	apdu-segment-timeout			O ¹	APDU segment timeout	R	W

Device (continued)

BACnet Standard Device					StruxureWare 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 ¹⁸	R	W
63	max-info-frames			O ⁶	Maximum information frames ¹⁸	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
339	backup-preparation-time			O ¹⁶	Backup preparation time		W
341	restore-preparation-time			O ¹⁶	Restore preparation time		W
340	restore-completion-time			O ¹⁶	Restore completion time		W
338	backup-and-restore-state			O ⁷	Backup and restore state	R	
152	active-cov-subscriptions			O ⁹	Active COV subscriptions	R ¹⁹	
172	slave-proxy-enable			O ¹⁰			
170	manual-slave-address-binding			O ^{10,12}			
169	auto-slave-discovery			O ^{10,11}			
171	slave-address-binding			O ^{10,12}			
196	last-restart-session			O ¹³			
203	time-of-device-restart			O ¹³			
202	restart-notification-recipients			O ¹⁷			
206	utc-time-synchronization-recipients			O ⁵			

Device (continued)

BACnet Standard Device					StruxureWare Device			
ID	BACnet property name	Required	Readable	Required	Optional	Internal Device property name	Readable	Writable
204	time-synchronization-interval				O ¹⁴			
193	align-intervals				O ¹⁴			
195	interval-offset				O ¹⁴			
372	serial-number				O			
371	property-list	R						
168	profile-name				O	Profile name	R	
515	proprietary-property-515					Serial number	R	
517	proprietary-property-517					Infinity path	R	

¹ These properties are required if, and shall be present only if, segmentation of any kind is supported.

² These properties are required if, and shall be present only if, the VT Services are supported.

³ If the device supports the execution of the TimeSynchronization service, then these properties shall be present.

⁴ If the device supports the execution of the UTCTimeSynchronization service, then these properties shall be present.

⁵ If present, this property shall be writable.

⁶ These properties are required if the device is an MS/TP master node.

⁷ These properties are required if, and shall be present only if, the device supports execution of the the backup and restore procedures.

⁸ This property is required if, and shall be present only if, the device supports the backup and restore procedures. If present, the property shall be writable.

⁹ This property is required if, and shall be present only if, the device supports the execution of either the SubscribeCOV or SubscribeCOVProperty service.

¹⁰ This property is required if, and shall be present only if, the device is capable of being a Slave-Proxy device.

¹¹ This property is required if, and shall be present only if, the device is capable of being Slave-Proxy device that implements automatic discovery of slaves.

¹² This property shall be writable if the device is directly connected to an MS/TP network.

¹³ These properties are required if the device supports the restart procedure as described in Clause 19.3.

¹⁴ These properties are required if, and shall be present only if, Time_Synchronization_Recipients or UTC_Time_Synchronization_Recipients is present. If present, these properties shall be writable.

¹⁵ These properties shall be present if the device is capable of tracking date and time.

¹⁶ These properties are required if, and shall be present only if, the device supports the execution of the backup and restore procedures as described in Clause 19.1 and cannot respond to subsequent communications within the minimum value it will accept in its APDU_Timeout property.

¹⁷ This property is required if, and shall be present only if, the device supports execution of the restart procedure as described in Caluse 19.3.

¹⁸ These properties are found in two locations: on the MSTP network object of the BACnet Interface (SmartStruxure server device) and on device objects (for proxies).

¹⁹ 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		
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	
351	event-message-texts			O ¹			
352	event-message-texts- config			O			
353	event-detection- enable	R					
355	event-algorithm- inhibit-ref			O			
354	event-algorithm- inhibit			O ²			
356	time-delay-normal			O			
111	status-flags	R			Status flags	R	
103	reliability	R			Reliability	P	
359	fault-type			O ³			
358	fault-parameters			O ³			

Event Enrollment

BACnet Standard Event Enrollment					StruxureWare Device				
ID	BACnet property name	Required	Readable	Required	Writable	Optional	Internal Device property name	Readable	Writable
357	reliability-evaluation-inhibit					O			
371	property-list	R							
168	profile-name					O	Profile name	P	

¹ This property, if present, shall be read-only.

² Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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.
- P indicates "Proxy Only," which means that the object is only supported by WorkStation.

Event Log

BACnet Standard Event Log					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					
371	property-list	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 ^{3,5}			
140	records-since-notification			O ^{3,5}			
173	last-notify-record			O ^{3,5}			
17	notification-class			O ^{3,5}			
35	event-enable			O ^{3,5}			
0	acked-transitions			O ^{3,5}			
72	notify-type			O ^{3,5}			
130	event-time-stamps			O ^{3,5}	To-off-normal time To-fault time To-normal time	R	
351	event-message-texts			O ^{4,5}			
352	event-message-texts-config			O ⁵			

Event Log (continued)

BACnet Standard Event Log					StruxureWare Device				
ID	BACnet property name	Required	Readable	Required	Writable	Optional	Internal Device property name	Readable	Writable
353	event-detection-enable					O ^{3,5}			
355	event-algorithm-inhibit-ref					O ⁵			
354	event-algorithm-inhibit					O ^{5,6}			
357	reliability-evaluation-inhibit					O ⁷			
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 if the object supports intrinsic reporting.

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

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

⁶ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

File

BACnet Standard File					StruxureWare 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	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
371	property-list	R					
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.

Notes:

- File_Size is writable when in Restore mode. Values limited to zero and current file size.
- P indicates "Proxy Only," which means that the object is only supported by WorkStation.

Group

BACnet Standard Group					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			
53	list-of-group-members	R					
85	present-value	R					
371	property-list	R					
168	profile-name			O			

Integer Value

BACnet Standard Integer Value					StruxureWare 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	
28	description			O	Description	R	W
85	present-value	R ¹			Value	R	W
111	status-flags	R			Status flags	R	
36	event-state			O ⁴	Event state	R	
103	reliability			O	Reliability	P	
81	out-of-service			O	Out of service	R	W
117	units	R			Unit	R	W
87	priority-array			O ²	Command Priority Levels	R	
104	relinquish-default			O ²	Relinquish default	R	W
22	COV-increment			O ³	COV increment	R	W
113	time-delay			O ^{4,6}	Time delay	R	W
17	notification-class			O ^{4,6}	BACnet notification	R	W
45	high-limit			O ^{4,6}	Upper limit	R	W
59	low-limit			O ^{4,6}	Lower limit	R	W
25	deadband			O ^{4,6}	Deadband	R	W
52	limit-enable			O ^{4,6}	Limit enable	R	W
35	event-enable			O ^{4,6}	Event enable	R	W
0	acked-transitions			O ^{4,6}	Acknowledged transitions	R	
72	notify-type			O ^{4,6}	Notify type	R	W
130	event-time-stamps			O ^{4,6}	To-off-normal time To-fault time To-normal time	R	
351	event-message-texts			O ^{5,6}	Event message texts	R	
352	event-message-texts-config			O ⁶			
353	event-detection-enable			O ^{4,6}			
355	event-algorithm-inhibit-ref			O ⁶			

Integer Value (continued)

BACnet Standard Integer Value					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
354	event-algorithm-inhibit			O ^{6,7}			
356	time-delay-normal			O ⁶			
357	reliability-evaluation-inhibit			O ⁸			
69	min-pres-value			O			
65	max-pres-value			O			
106	resolution			O			
371	property-list	R					
168	profile-name			O	Profile name	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 These properties are required if, and shall be present only if, Present_Value is commandable.

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

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

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

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

⁷ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

Large Analog Value

BACnet Standard Large Analog Value					StruxureWare 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	
28	description			O	Description	R	W
85	present-value	R ¹					
111	status-flags	R					
36	event-state			O ⁴			
103	reliability			O			
81	out-of-service			O			
117	units	R					
87	priority-array			O ²	Command Priority Levels	R	
104	relinquish-default			O ²	Relinquish default	R	W
22	cov-increment			O ³	COV increment	R	W
113	time-delay			O ^{4,6}	Time delay	P	P
17	notification-class			O ^{4,6}	BACnet notification	R	W
45	high-limit			O ^{4,6}	Upper limit	P	P
59	low-limit			O ^{4,6}	Lower limit	P	P
25	deadband			O ^{4,6}	Deadband	P	P
52	limit-enable			O ^{4,6}	Limit enable	P	P
35	event-enable			O ^{4,6}	Event enable	P	P
0	acked-transitions			O ^{4,6}	Acknowledgement transitions	P	
72	notify-type			O ^{4,6}	Notify type	P	P
130	event-time-stamps			O ^{4,6}	To-off-normal time To-fault time To-normal time	P	
351	event-message-texts			O ^{5,6}			
352	event-message-texts-config			O ⁶			
353	event-detection-enable			O ^{4,6}			
355	event-algorithm-inhibit-ref			O ⁶			
354	event-algorithm-inhibit			O ^{6,7}			

Large Analog Value (continued)

BACnet Standard Large Analog Value					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
356	time-delay-normal			O ⁶			
357	reliability-evaluation-inhibit			O ⁸			
69	min-pres-value			O			
65	max-pres-value			O			
106	resolution			O			
371	property-list	R					
168	profile-name			O	Profile name	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 These properties are required if, and shall be present only if, Present_Value is commandable.

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

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

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

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

⁷ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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

Life Safety Point

BACnet Standard Life Safety Point					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	R					
164	tracking-value	R ¹					
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 ^{2,5}			
17	notification-class			O ^{2,5}			
166	life-safety-alarm-values			O ^{2,5}			
7	alarm-values			O ^{2,5}			
39	fault-values			O			
35	event-enable			O ^{2,5}			
0	acked-transitions			O ^{2,5}			
72	notify-type			O ^{2,5}			
130	event-time-stamps			O ^{2,5}			
351	event-message-texts			O ^{4,5}			
352	event-message-texts- config			O ⁵			
353	event-detection- enable			O ^{2,5}			
355	event-algorithm- inhibit-ref			O ⁵			
354	event-algorithm- inhibit			O ^{5,6}			
356	time-delay-normal			O ⁵			
357	reliability-evaluation- inhibit			O			

Life Safety Point (continued)

BACnet Standard Life Safety Point					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
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			
371	property-list	R					
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.

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

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

⁶ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

Life Safety Zone

BACnet Standard Life Safety Zone					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	R					
164	tracking-value	R ¹					
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 ^{2,4}			
17	notification-class			O ^{2,4}			
166	life-safety-alarm-values			O ^{2,4}			
7	alarm-values			O ^{2,4}			
39	fault-values			O			
35	event-enable			O ^{2,4}			
0	acked-transitions			O ^{2,4}			
72	notify-type			O ^{2,4}			
130	event-time-stamps			O ^{2,4}			
351	event-message-texts			O ^{3,4}			
352	event-message-texts- config			O ⁴			
353	event-detection- enable			O ^{2,4}			
355	event-algorithm- inhibit-ref			O ⁴			
354	event-algorithm- inhibit			O ^{4,5}			
356	time-delay-normal			O ⁴			
357	reliability-evaluation- inhibit			O			

Life Safety Zone (continued)

BACnet Standard Life Safety Zone					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
163	silenced	R					
161	operation-expected	R					
158	maintenance-required			O			
165	zone-members	R					
159	member-of			O			
371	property-list	R					
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 This property, if present, is required to be read-only.

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

⁵ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

Load Control

BACnet Standard Load Control					StruxureWare Device		
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			Value	P	P
222	state-description			O	State description	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				
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 ^{2,4}	BACnet notification	P	P
113	time-delay			O ^{2,4}	Time delay (s)	R	W
35	event-enable			O ^{2,4}	Event enable	P	P
0	acked-transitions			O ^{2,4}	Acknowledged transitions	P	
72	notify-type			O ^{2,4}	Notify type	P	P
130	event-time-stamps			O ^{2,4}	To-off-normal time To-fault time To-normal time	P	
351	event-message-texts			O ^{3,4}			
352	event-message-texts-config			O ⁴			
353	event-detection-enable			O ^{2,4}			
355	event-algorithm-inhibit-ref			O ⁴			

Load Control (continued)

BACnet Standard Load Control					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
354	event-algorithm-inhibit			O ^{4,5}			
356	time-delay-normal			O ⁴			
357	reliability-evaluation-inhibit			O ⁶			
371	property-list	R					
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 if the object supports intrinsic reporting.

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

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

⁵ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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

BACnet Standard Loop					StruxureWare 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	
85	present-value	R ⁷			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 ⁷	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

Loop (continued)

BACnet Standard Loop					StruxureWare Device			
		Required	Readable	Required	Optional		Readable	Writable
ID	BACnet property name					Internal Device property name		
113	time-delay				O ^{5,8}	Time delay (s)	R	W
17	notification-class				O ^{5,8}	BACnet notification	R	W
34	error-limit				O ^{5,8}	Error limit	R	W
25	deadband				O ^{5,8}	Deadband	R	W
35	event-enable				O ^{5,8}	Event enable	R	W
0	acked-transitions				O ^{5,8}	Acknowledged transitions	R	
72	notify-type				O ^{5,8}	Notify type	R	W
130	event-time-stamps				O ^{5,8}	To-off-normal time To-fault time To-normal time	R	
351	event-message-texts				O ^{6,8}			
352	event-message-texts-config				O ⁸			
353	event-detection-enable				O ^{5,8}			
355	event-algorithm-inhibit-ref				O ⁸			
354	event-algorithm-inhibit				O ^{8,9}			
356	time-delay-normal				O ⁸			
357	reliability-evaluation-inhibit				O ¹⁰			
371	property-list		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, and shall be present only if, the object supports COV reporting.

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

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

⁷ These properties are required to be writable when Out-Of-Service is TRUE.

⁸ These properties shall be present only if the object supports intrinsic reporting.

⁹ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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

Multi-state Input

BACnet Standard Multi-state Input					StruxureWare 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	
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	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 ^{3,5}	Time delay (s)	R	W
17	notification-class			O ^{3,5}	BACnet notification	R	W
7	alarm-values			O ^{3,5}	Is alarm value	R	W
39	fault-values			O ⁷	Is fault value	R	W
35	event-enable			O ^{3,5}	Event enable	R	W
0	acked-transitions			O ^{3,5}	Acknowledged transitions	R	
72	notify-type			O ^{3,5}	Notify type	R	W
130	event-time-stamps			O ^{3,5}	To-off-normal time To-fault time To-normal time	R	
351	event-message-texts			O ^{4,5}			
352	event-message-texts-config			O ⁵			
353	event-detection-enable			O ^{3,5}			
355	event-algorithm-inhibit-ref			O ⁵			
354	event-algorithm-inhibit			O ^{5,6}			
356	time-delay-normal			O ⁵			

Multi-state Input (continued)

BACnet Standard Multi-state Input					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
357	reliability-evaluation-inhibit			O ⁷			
371	property-list	R					
168	profile-name			O	Profile name	P	

¹ This property is required to be writable when Out-Of-Service is TRUE.

² Footnote removed

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

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

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

⁶ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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

Multi-state Output

BACnet Standard Multi-state Output					StruxureWare 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	
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 ^{1,3}	Time delay	P	P
17	notification-class			O ^{1,3}	BACnet notification	P	P
40	feedback-value			O ¹	Feedback value	P	P
35	event-enable			O ^{1,3}	Event enable	P	P
0	acked-transitions			O ^{1,3}	Acknowledged transitions	P	
72	notify-type			O ^{1,3}	Notify type	P	P
130	event-time-stamps			O ^{1,3}	To-off-normal time To-fault time To-normal time	P	
351	event-message-texts			O ^{2,3}			
352	event-message-texts-config			O ³			
353	event-detection-enable			O ^{1,3}			
355	event-algorithm-inhibit-ref			O ³			
354	event-algorithm-inhibit			O ^{3,4}			
356	time-delay-normal			O ³			

Multi-state Output (continued)

BACnet Standard Multi-state Output					StruxureWare Device				
ID	BACnet property name	Required	Readable	Required	Writable	Optional	Internal Device property name	Readable	Writable
357	reliability-evaluation-inhibit					O ⁵			
371	property-list		R						
168	profile-name					O	Profile name	P	

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

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

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

⁴ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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

Multi-state Value

BACnet Standard Multi-state Value					StruxureWare 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	
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	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 ^{4,6}	Time delay (s)	R	W
17	notification-class			O ^{4,6}	BACnet notification	R	W
7	alarm-values			O ^{4,6}	Is alarm value	R	W
39	fault-values			O ⁸	Is fault value	R	W
35	event-enable			O ^{4,6}	Event enable	R	W
0	acked-transitions			O ^{4,6}	Acknowledged transitions	R	
72	notify-type			O ^{4,6}	Notify type	R	W
130	event-time-stamps			O ^{4,6}	To-off-normal time To-fault time To-normal time	R	
351	event-message-texts			O ^{5,6}			
352	event-message-texts-config			O ⁶			
353	event-detection-enable			O ^{4,6}			
355	event-algorithm-inhibit-ref			O ⁶			
354	event-algorithm-inhibit			O ^{6,7}			
356	time-delay-normal			O ⁶			

Multi-state Value (continued)

BACnet Standard Multi-state Value					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
357	reliability-evaluation-inhibit			O ⁸			
371	property-list	R					
168	profile-name			O	Profile name	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 Footnote removed.

³ These properties are required if, and shall be present only if, Present_Value is commandable.

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

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

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

⁷ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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

Notification Class

BACnet Standard Notification Class					StruxureWare 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	
28	description			O	Description	R	W
17	notification-class	R			BACnet notification	R	
86	priority	R			Priority-to-off-normal Priority-to-fault Priority-to-normal	R	W
1	ack-required	R			Acknowledgement required	R	W
102	recipient-list	R			Recipient rules	R	W
371	property-list	R					
168	profile-name			O	Profile name	P	

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

Positive Integer Value

BACnet Standard Positive Integer Value					StruxureWare 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	
28	description			O	Description	R	W
85	present-value	R ¹			Value	R	W
111	status-flags	R			Status flags	R	
36	event-state			O ⁴	Event state	R	
103	reliability			O	Reliability	P	
81	out-of-service			O	Out of service	R	W
117	units	R			Unit	R	W
87	priority-array			O ²	Command Priority Levels	R	
104	relinquish-default			O ²	Relinquish default	R	W
22	COV-increment			O ³	COV increment	R	W
113	time-delay			O ^{4,6}	Time delay	R	W
17	notification-class			O ^{4,6}	BACnet notification	R	W
45	high-limit			O ^{4,6}	Upper limit	R	W
59	low-limit			O ^{4,6}	Lower limit	R	W
25	deadband			O ^{4,6}	Deadband	R	W
52	limit-enable			O ^{4,6}	Limit enable	R	W
35	event-enable			O ^{4,6}	Event enable	R	W
0	acked-transitions			O ^{4,6}	Acknowledged transitions	R	
72	notify-type			O ^{4,6}	Notify type	R	W
130	event-time-stamps			O ^{4,6}	To-off-normal time To-fault time To-normal time	R	
351	event-message-texts			O ^{5,6}	Event message texts	R	
352	event-message-texts- config			O ⁶			
353	event-detection- enable			O ^{4,6}			
355	event-algorithm- inhibit-ref			O ⁶			

Positive Integer Value (continued)

BACnet Standard Positive Integer Value					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
354	event-algorithm-inhibit			O ^{6,7}			
356	time-delay-normal			O ⁶			
357	reliability-evaluation-inhibit			O ⁸			
69	min-pres-value			O			
65	max-pres-value			O			
106	resolution			O			
371	property-list	R					
168	profile-name			O	Profile name	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 These properties are required if, and shall be present only if, Present_Value is commandable.

³ These properties are required if, and shall be present only if, the object supports COV reporting.

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

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

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

⁷ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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

Program

BACnet Standard Program					StruxureWare Device		
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
48	instance-of			O			
111	status-flags	R			Status flags	P	
103	reliability			O	Reliability	P	
81	out-of-service	R			Out of service	P	P
353	event-detection-enable			O ^{2,3}			
17	notification-class			O ^{2,3}	BACnet notification	R	
35	event-enable			O ^{2,3}	Event enable	R	W
36	event-state			O ^{2,3}			
0	acked-transitions			O ^{2,3}	Acknowledged transitions	R	
72	notify-type			O ^{2,3}	Notify type	R	W
130	event-time-stamps			O ^{2,3}	To-off-normal time To-fault time To-normal time	R	
351	event-message-texts			O ³			
352	event-message-texts-config			O ³			
357	reliability-evaluation-inhibit			O ⁴			
371	property-list	R					
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.

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

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

⁴ If this property is present, then the Reliability property shall be present.

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

Pulse Converter

BACnet Standard Pulse Converter					StruxureWare Device		
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			Count change time	P	
178	count-before-change	R			Count before change	P	
22	cov-increment			O ²	COV increment	P	P
180	cov-period			O ²	COV period	P	P
17	notification-class			O ^{3,5}	BACnet notification	P	P
113	time-delay			O ^{3,5}	Time delay	P	P
45	high-limit			O ^{3,5}	Upper limit	P	P
59	low-limit			O ^{3,5}	Lower limit	P	P
25	deadband			O ^{3,5}	Deadband	P	P
52	limit-enable			O ^{3,5}	Limit enable	P	P
35	event-enable			O ^{3,5}	Event enable	P	P
0	acked-transitions			O ^{3,5}	Acknowledgement transitions	P	
72	notify-type			O ^{3,5}	Notify type	P	P
130	event-time-stamps			O ^{3,5}	To-off-normal time To-fault time To-normal time	P	

Pulse Converter (continued)

BACnet Standard Pulse Converter					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
351	event-message-texts			O ^{4,5}			
352	event-message-texts- config			O ⁵			
353	event-detection- enable			O ^{3,5}			
355	event-algorithm- inhibit-ref			O ⁵			
354	event-algorithm- inhibit			O ^{5,6}			
356	time-delay-normal			O ⁵			
357	reliability-evaluation- inhibit			O ⁷			
371	property-list	R					
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, and shall be present only if, the object supports COV reporting.

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

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

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

⁶ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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

Schedule

BACnet Standard Schedule					StruxureWare 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	
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
32	exception-schedule			O ¹	Exception	R	W
174	schedule-default	R			Default value	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	
353	event-detection-enable			O ^{2,3}			
17	notification-class			O ^{2,3}	BACnet notification	R	W
35	event-enable	R		O ^{2,3}	Event enable	R	W
36	event-state	R		O ^{2,3}	Event state	R	
0	acked-transitions			O ^{2,3}	Acknowledged transitions	R	
72	notify-type			O ^{2,3}	Notify type	R	W
130	event-time-stamps			O ^{2,3}	To-off-normal time To-fault time To-normal time	R	
351	event-message-texts			O ³	Event message texts	R	
352	event-message-texts-config			O ³			
357	reliability-evaluation-inhibit			O			

Schedule (continued)

BACnet Standard Schedule					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
371	property-list	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.

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

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

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

String

BACnet Standard String					StruxureWare 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	
28	description			O	Description	R	W
85	present-value	R ¹			Value	R	W
111	status-flags	R			Status flags	R	
36	event-state			O ³	Event state	R	
103	reliability			O	Reliability	R	
81	out-of-service			O	Out of service	R	W
87	priority-array			O ²	Command Priority Levels	R	
104	relinquish-default			O ²	Relinquish default	R	
113	time-delay			O ^{3,5}	Time delay	R	
17	notification-class			O ^{3,5}	BACnet notification	R	
7	alarm-values			O ^{3,5}	Is alarm value	R	
39	fault-values			O ⁷	Is fault value	R	
35	event-enable			O ^{3,5}	Event enable	R	
0	acked-transitions			O ^{3,5}	Acknowledged transitions	R	
72	notify-type			O ^{3,5}	Notify type	R	
130	event-time-stamps			O ^{3,5}	To-off-normal time To-fault time To-normal time	R	
351	event-message-texts			O ^{4,5}	Event message texts	R	
352	event-message-texts-config			O ⁵			
353	event-detection-enable			O ^{3,5}			
355	event-algorithm-inhibit-ref			O ⁵			
354	event-algorithm-inhibit			O ^{5,6}			
356	time-delay-normal			O ⁵			
357	reliability-evaluation-inhibit			O ⁷			

String (continued)

BACnet Standard String					StruxureWare Device				
ID	BACnet property name	Required	Readable	Required	Writable	Optional	Internal Device property name	Readable	Writable
371	property-list		R						
168	profile-name					O	Profile name	P	

¹ If present-value is commandable, then it required to be writable. This property is required to be writable when Out_Of_Service is TRUE.

² These properties are required if, and shall be present only if, Present_Value is commandable.

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

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

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

⁶ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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

Structured View

BACnet Standard Structured View					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			
208	node-type	R					
207	node-subtype			O			
211	subordinate-list	R					
210	subordinate- annotations			O			
371	property-list	R					
167	profile-name			O			

BACnet Standard Trend Log					StruxureWare 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	
28	description			O	Description	R	W
133	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 ⁸	Log device object property	R	W
134	log-interval			O ^{1,3}	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	
197	logging-type	R			Logging type	P	P
193	align-intervals			O ⁵	Align intervals	P	P
195	interval-offset			O ⁵	Interval offset	P	P
205	trigger			O	Trigger	P	P
111	status-flags	R			Status flags	R	
103	reliability			O	Reliability	P	
137	notification-threshold			O ^{4,7}	Notification threshold	R	W
140	records-since- notification			O ^{4,7}	Records since notification	R	
173	last-notify-record			O ^{4,7}	Last notify record	R	
36	event-state	R			Event state	R	
17	notification-class			O ^{4,7}	BACnet notification	R	W
35	event-enable			O ^{4,7}	Event enable	R	W
0	acked-transitions			O ^{4,7}	Acknowledged transitions	R	
72	notify-type			O ^{4,7}	Notify type	R	W

Trend Log (continued)

BACnet Standard Trend Log					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
130	event-time-stamps			O ^{4,7}	To-off-normal time To-fault time To-normal time	R	
351	event-message-texts			O ^{6,7}			
352	event-message-texts- config			O ⁷			
353	event-detection- enable			O ^{4,7}			
355	event-algorithm- inhibit-ref			O ⁷			
354	event-algorithm- inhibit			O ^{7,9}			
357	reliability-evaluation- inhibit			O ¹⁰			
371	property-list	R					
168	profile-name			O	Profile name	P	

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

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

³ If present, these properties are required to be writable when Logging_Type has the value POLLED or the value COV. Also, if present this property is required to be read-only if Logging_Type has the value TRIGGERED.

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

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

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

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

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

⁹ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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.
- P indicates "Proxy Only," which means that the object is only supported by WorkStation.

Trend Log Multiple

BACnet Standard Trend Log Multiple					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			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					
137	notification-threshold			O ^{4,6}			
140	records-since-notification			O ^{4,6}			
173	last-notify-record			O ^{4,6}			
17	notification-class			O ^{4,6}			
35	event-enable			O ^{4,6}			
0	acked-transitions			O ^{4,6}			
72	notify-type			O ^{4,6}			
130	event-time-stamps			O ^{4,6}			

Trend Log Multiple (continued)

BACnet Standard Trend Log Multiple					StruxureWare Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
351	event-message-texts			O ^{5,6}			
352	event-message-texts- config			O ⁶			
353	event-detection- enable			O ^{4,6}			
355	event-algorithm- inhibit-ref			O ⁶			
354	event-algorithm- inhibit			O ^{6,7}			
357	reliability-evaluation- inhibit			O ⁸			
371	property-list	R					
168	profile-name			O			

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

² This property is required to be writable when Logging_Type has the value POLLED or the value COV. Also, if present this property is required to be read-only if Logging_Type has the value TRIGGERED.

³ These properties are required if, and shall be present only if, the object supports clock-aligned logging.

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

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

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

⁷ Event_Algorithm_Inhibit shall be present if Event_Algorithm_Inhibit_Ref is present.

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

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 date and time when the Schedule's present-value most recently changed value.
Next_Transition_Time	513	The date and 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.
Time since previous transition (min)	518	The elapsed time in minutes or parts since the present-value previous last changed.
Time to next transition (min)	519	The amount of time in minutes before the present-value changes.
Time to following transition (min)	520	The amount of time in minutes before present-value changes to the Following transition value.
Next transition value	521	The present-value of the referenced property after the next transition.
Following transition value	522	The present-value after two changes.

Vendor Specific Implementations (continued)

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.

Restrictions on Object Names and Identifiers

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 Instance Number	Maximum Instance Number
Device	1	4194302
File ¹	1	1
All others	1	200

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

The following table lists the maximum character length of object names and descriptions.

Property	Maximum Length	Comments
Name	254 characters	The first character must be alphabetic and the remaining characters must be alphabetic, numeric, or one of '_' or '.'.
Description	1000 characters	

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.